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A Catalogue of Meteorological Data Obtained During the Line Islands Experiment February-April 1967

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January 1968

HAWAII INSTITUTE OF GEOPHYSICS

University of Hawaii

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NCAR Technical Notes

NATIONAL CENTER FOR ATMOSPHERIC RESEARCH
Boulder, Colorado



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Ben M. Kahn
VT



Aerial view of Palmyra Island and associated reefs, looking westward from an altitude of 10,000 ft. (Photo by Bob Kendall)

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FOREWORD

The Line Islands Experiment was designed to provide comprehensive meteorological data in the oceanic part of the Equatorial Trough Zone for a variety of basic studies, to provide data with which to evaluate cloud photography performed by the ATS-1 synchronous satellite, and to serve as a pilot program for future experiments in tropical meteorology.

For the Experiment to achieve its objectives, interested scientists must have ready access to the data. This catalogue attempts to list comprehensively the kinds of data collected, dates and frequencies of observations, dates and times of satellite pictures, and any obvious limitations of the data. The format of the data is given, as well as the source of copies, which may be obtained on request. If not otherwise stated, the source of information or data is either of the co-editors.

Obviously, this catalogue will not perform its function until it is distributed. To reduce the preparation time as much as possible, most of the actual data are not included. The exception is surface data tabulations, which have been included because they are relatively compact and will enable the user to arrive at a rapid characterization of the meteorological situation on a given day at a given location and hence to determine which data to request.

It is important to note that this is the first, but not the last, data summarization of the Line Islands program. A series of data reports is planned which will include, tentatively, satellite data, rawinsonde data, aircraft data and sea temperature data -- probably in summary rather than complete form.

Finally, in the interest of rapid publication, which is a requirement for this catalogue, third only to accuracy and comprehensiveness, little attempt has been made to treat each form of data in exactly the same way. The reader is urged to seek additional information from the appropriate source if some point of interest has been covered inadequately.

ACKNOWLEDGMENTS

The detailed scientific plan for the Line Islands Experiment was formulated in August 1966. Planning of all phases of the program commenced at once, but a survey trip to the Line Islands did not take place until late November, and the operational, logistic and financial arrangements were not complete until January 1967. Despite the complexity of the operation and its very tight time schedule, the field program was carried out during February-April 1967, with a degree of success that equaled or exceeded our best hopes. The credit for this outcome goes to a large number of individuals in a large number of organizations, and the success of the program is a tribute to the hard work and dedication of all those who participated and assisted.

The National Science Foundation (especially Fred White, Randall Robertson, Gerald Greenwood and Leonard Gardner) made the Experiment possible by enthusiastic support in the face of complex and ever-changing problems.

Individuals within NCAR who made substantial personal contributions to the program include: William Lanterman, Experiment Field Manager and Field Observing Facility Manager; Jack Hinkelman, Research Aviation Facility Manager; William Jones, Assistant to the Director of the Laboratory of Atmospheric Sciences; Charles Palmer, Assistant to the Director of the Facilities Laboratory; Robert Greenwald, Procurement Officer; and Landis Parsons, Purchasing Agent. Robert James was manager of the Palmyra station during the program, and provided liaison between the scientific and operational groups from the earliest planning phase until the end of the program, while assuming some of the duties of both. Leo Crouch and Jack Tefft should be recognized for their untiring efforts in solving a great variety of practical problems. Henry van de Boogaard was of great assistance to the scientific effort, both in Honolulu and Palmyra. The NCAR Research Aviation Facility carried out 60 research

flights in 53 days in a hostile environment for a two-engined aircraft, an achievement that is due to the uncommon dedication of all concerned. The pilots were William Bullock, Loyd Newcomer, Robert Beabout, Lester Zinser and Clyde Hudson. Other Aviation Facility people who should share the credit are: Cleon Biter, Ed Brown, Melvin Busch, Frank Brunot, Gene Prantner, Al Dascher, and William Kleinlein, the last from Inter-mountain Aviation, Inc., Tuscon, Arizona. Ralph Coleman did an excellent cloud photography job on Fanning Island, and Frank Robitaille should be commended for a variety of observing jobs on Fanning Island. Robert Kubara took months away from his job in the Scientific Balloon Facility to coordinate the U.S. Air Force rawinsonde program and, in addition, did an outstanding job as station manager on Fanning Island. Brian Lewis established a communications network on the islands quickly and under primitive conditions. George Saum was vital in solving electronics and communications problems. Al Sorenson handled many technical problems and helped receive the APT pictures on Palmyra. Julian Pike served for a month as station manager on Christmas Island. Robert McBeth acted as impromptu cloud photographer and assisted at the APT station. Don Eklund was on the original survey trip and helped arrange for much of the surface observing systems. Ed Elsberry solved a great variety of practical difficulties in the field. The general photographic documentation of the program is largely due to Rodger Ewy.

The field program was assisted in several vital ways by the U.S. Air Force. The Sixth Weather Squadron (mobile), U.S. Air Force, supplied personnel and equipment for the three island rawinsonde stations, and subsequently supplied personnel for data reduction, and the 57th Weather Reconnaissance Squadron made 24 flights in support of the program. For their cooperation in making this support possible, Brig. Gen. Russell Pierce, Dr. Robert Fletcher, Col. William Barney, Col. Robert Kerr, Lt. Col. Glenn Patterson, Col. Lowell Stiles, and Col. Sievers, all of Headquarters, Air Weather Service, and Lt. Col. Lloyd Smith, Headquarters, U.S. Air Force, have our sincere gratitude.

In the Sixth Weather Squadron, the cooperation of Col. Elwyn Mosely, Commander, and CWO Wayne Sunderland throughout the program is appreciated. C. M. Sgt. John Shumaker deserves special thanks for supervising the rawinsonde program and assisting with many logistic problems of the operation that were above and beyond his own responsibilities. We are also indebted to the above gentlemen for making it possible for all unworked soundings to be worked up after the end of the formal program. T. Sgt. H. Coffin, A1C A. Miller, A1C A. Watson, A1C J. Yeager, A2C G. Mason and A2C B. Niewinski worked up these soundings. Although it is not customary to specially commend military men for doing their assigned tasks, we wish to recognize the rawinsonde observers on the islands for securing a valuable data sample under difficult conditions. By island, they were: Palmyra -- M. Sgt. N. Williams, S. Sgt. A. Bardouche, S. Sgt. H. Coffin, A1C W. King, A1C J. Kingston, A1C J. Lee, A2C W. Bucklin, A2C G. Mason, A2C B. Niewinski, and A2C A. Watson; Fanning -- T. Sgt. H. Brown, S. Sgt. D. Hassenbein, A1C H. Amaker, A1C T. Parker, A1C J. Washington, A2C R. Elliott, A2C K. Hermach, and A2C C. Thompson; Christmas -- S. Sgt. D. Coleman, S. Sgt. H. Fuller, S. Sgt. J. Kerwin, A1C H. Clifton, A1C R. McCurdy, A1C L. Rathburn, A2C B. Craft, and A2C A. Miller.

The cooperation of Col. Brenner, Capt. Windsor, and Capt. Bair, Ninth Weather Wing, who helped arrange the reconnaissance flights is appreciated. We are especially grateful to Col. John Horn, Commander, 57th Weather Reconnaissance Squadron, for his patient cooperation. Aircraft crews of the 57th WRS took a large quantity of well-documented cloud pictures in addition to their other duties. They include: Col. Evans, Col. Wolcott, Maj. Chapple, Maj. Collins, Maj. Hancock, Capt. Coan, Capt. Follmer, Capt. Hamilton, Capt. Payton, and Capt. Swanson.

The U.S. Army extended vital assistance to the Line Islands Experiment, most notably by supplying surface weather observers and equipment. The cooperation of Mrs. Frances Whedon, Chief, Research and Development Environmental Service Division, Dr. Kenneth Barnett and Dr. Marvin Lowenthal, Atmospheric Science Laboratory, USAEC, Ft. Monmouth, New Jersey,

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The cooperation of the U.S. Navy and their support of the program is appreciated. Thanks are due to Adm. Roy Lee Johnson, Commander-in-Chief, U.S. Pacific Fleet, and Capt. USN Richard Sanborn, Weather Officer, U.S. Pacific Fleet, for assistance in arranging support. We are grateful to Cdr. John Gibbs, Commanding Officer, VW-1 Squadron, for cooperation in arranging reconnaissance flights. Three timely flights were made by the VR-21 Squadron to transport personnel and material out of the Line Islands at the end of the program. We are grateful for the interest and support of Capt. USN E. T. Harding, Director, Naval Weather Service, Mr. Max Edelstein and Capt. USN Thomas O'Neill, Office of Naval Weather Service.

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We thank James Osmun, Director, Ray Belknap and Ed Carlstead, Pacific Regional Office, ESSA, for the varied assistance given the program by their office. Myron Kerner participated in the original survey

trip and helped to solve communications difficulties. Joseph Vederman, Meteorologist-in-Charge, and many others of the Honolulu Airport Office, USWB, also gave assistance. William Sapp, USWB, conducted the observing program on *Weather Ship II*.

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Many university scientists and students participated in the Line Islands Experiment, but we can discuss the specific contributions of only a few. Verner Suomi, University of Wisconsin, who designed the cloud cameras on NASA's ATS-1 satellite, was an inspiration to the program from the initial planning phases, and when he visited the Line Islands during the Experiment. Don Frazee, Air Force Institute of Technology student at Texas A & M University, in addition to pursuing his own research, acted as station manager at Christmas Island for one month and carried out the cloud photography program there. Aylmer Thompson, Texas A & M University, assisted in many ways prior to the field program proper, and was responsible for much of the photographic coverage obtained from the Navy's VW-1 flights and from the Air National Guard flights. Heng-jen Hwang, St. Louis University, did an outstanding job in receiving APT satellite pictures and in the Palmyra cloud photography program. Also participating actively were: Clifford Murino and Albert Pallmann, St. Louis University; Stefan Hastenrath, Robert Ragotzkie, Kris Menon, James Maynard, Fritz Hasler, Stig Rossby and David Nelson, all of the University of Wisconsin; Peter Kuhn and Stephen Cox, ESSA - University of Wisconsin; William Marlatt and Don Hill, Colorado State University (with Andrew Bunker's group); And Tetsuya Fujita, Dorothy Bradbury and their group from the University of Chicago, who carried out photographic work on Maui. Andrew Bunker, Margaret Chaffee, and others participated on the C-540 research flights, Woods Hole Oceanographic Institution. Finally, although not field participants, the assistance rendered by William Gray, Colorado State University, and Charles Jordan, Florida State University, is appreciated.

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I. INTRODUCTION

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I. INTRODUCTION

SCIENTIFIC OBJECTIVES OF THE PROGRAM

The goals of the Line Islands Experiment can be placed into three broad categories:

- To provide a data sample for basic observational studies of meteorological phenomena in the oceanic portion of the Equatorial Trough Zone. To be sure, the Trough Zone has not gone unobserved in the past; some oceanographic data exist, some surface and upper-air data exist, and some satellite observations exist. However, all these data have the crucial deficiency that they are uncorrelated, and/or that much of the atmospheric data comes from the vicinity of large islands or continents -- introducing complicating effects that, in the primitive state of our knowledge, are difficult to account for. The Line Islands program has provided the first comprehensive data sample in the oceanic Equatorial Trough Zone -- far from continents or significantly large islands -- that combines adequate satellite and meteorological data for a variety of basic studies.

- To provide a meteorological data sample with which to evaluate comprehensively cloud photography performed by the ATS-1 synchronous satellite.

- To serve as a pilot program for more extensive tropical meteorological experiments (i.e., TROMEX) in the future.

LIMITATIONS OF THE PROGRAM

The planning phase of the program began in earnest less than six months prior to the deployment of equipment and personnel in the field. The stimulus for this haste was the imminence of the ATS-1 launch (6 December 1966) and the desire to obtain comprehensive data within the useful lifetime of the cameras, which, of course, was not known at that time. Initial inquiries showed that vital observational and logistics

support would be available during early 1967 but might not have been available later. The February-April period was also the most logical scientifically, since the mean position of the Trough Zone then lies within the Line Islands, rather than north of the northernmost island, Palmyra, as it does during the second half of the year.

The choice of this observing period having solidified as February-April 1967, it was impossible to consider any instrumentation in the developmental or experimental stage; *the Line Islands Experiment was carried out with existing, off-the-shelf items, but with care taken to extract the maximum benefit from available technology.* In the evaluation of the data, another important goal of the program therefore emerges -- the evaluation of the adequacy of the available technology in tropical meteorological experiments. For example, the measurement of temperature in a standard instrument shelter is widely suspected to be inadequate for many purposes in the tropics. The *siting* of the shelter, however, was selected with great care, so that the effects of technique should be separable from the effects of site. In another example, the GMD-1B rawinsondes were carefully sited, evaluated with attention to detail, and operated at ten data points per minute in the boundary layer instead of the usual one per minute, in order to extract the maximum possible benefit from the system. The same general comments apply to all observing systems that were employed.

Finally, the program was limited in scope. The meteorological program was based on Palmyra, Fanning and Christmas Islands, and most of the ship- and aircraft-based observations were carried out within a 300 n mi radius of these islands. Therefore, the data obtained during the Line Islands Experiment can be exploited to its greatest potential in the study of meteorological processes on scales up to and including the small synoptic scale.

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II. THE LINE ISLANDS

Straddling the equator between 6N and 11S, some 1,000 mi south of Hawaii, are eleven atolls, known collectively as the Line Islands (Fig. 1). The five northernmost islands -- Christmas, Fanning, Washington, Palmyra and Kingman Reef -- are usually identified as the Northern Line Islands, while the remaining six -- Jarvis, Malden, Starbuck, Caroline, Vostok and Flint -- are called the Southern Line Islands.

All these atolls lack significant orography; the tallest objects are generally the tops of the coconut palms some 60 to 80 ft above the land. Only four of the atolls -- Palmyra, Fanning, Christmas and Caroline -- have lagoons, while the rest have the familiar fringing reef. Washington, however, is unique, having a freshwater lake whose level is controlled by a lock opening seaward on the south side of the island. In addition, numerous canals have been constructed to facilitate the collection and transport of copra.

Some additional geographical data for the Northern Line Islands are presented in Table 1.

Possession of each of the atolls has, at one time or another, been disputed between the United States and Great Britain, although a quiet application of either squatters rights or the friendly visit of a naval ship has not infrequently settled rival claims. Christmas was contested as recently as 1957, and Washington was described as an American island as late as 1940. Fanning, on the other hand, has been an undisputed British possession for nearly a century. Today, all islands except Kingman Reef, Palmyra and Jarvis are recognized British possessions.

All the islands have been occupied at one time or another, although generally for short periods connected with either guano digging or copra production. Only Malden (1890-1926), Christmas (1937-present), Fanning (1902-present) and Washington (1925-present) have had sustained occupation. During the last twenty-five years the total population of the latter

Table 1

SOME GEOGRAPHICAL DATA OF THE LINE ISLANDS

Island	Position	Natural Acres	Lagoon Acres	Cultivated Acres	Total Acres	Population
Christmas	1°55'N 157°20'W	88,960	68,077	11,000	157,037	~200
Fanning	3°54'N 159°23'W	2,456 (land) 2,951 (salt flats)	28,800	3,122	33,207	~300
Washington	4°43'N 160°25'W	2,361	689 (lake) 444 (bog)	2,092	3,494	~350
Palmyra	5°53'N 162°05'W	1,470	5,690	None	7,160	Uninhabited

three has generally been just under 1,000 people, with the largest number consisting of contract Gilbertese labor working for the three copra plantations. In 1966 all three plantations produced 2,284 (long) tons of dried copra.

Administratively, all islands, save the latter three, are the ultimate responsibility of the High Commissioner for the Western Pacific Territories. The Northern Line Islands are administered through the Gilbert and Ellice Islands Colony with a District Commissioner resident on Christmas Island; the Southern Line Islands are directly under the High Commissioner resident in Honiara.

Christmas, Fanning and Washington are served about twice a year by northbound ships of the Bank Line enroute between Suva and the Panama Canal.

A. CHRISTMAS ISLAND

It is fitting to recall that the first published account of western contact with any of the Line Islands had, in part, a scientific objective: namely, to observe the eclipse of the sun on 30 December 1777. Six days before, the master of *HMS Resolution* noted in his log that:

"At half past seven this morning we discovered land to the northeast which proved to be a low sandy Island with many lagoons on it: about five o'clock in the afternoon we came to an anchor to leeward of it in lat. 1°58'N and long. 202°32'E."

On the morning of the 30th James Cook, King and Bayly:

"...went ashore, on the small island above-mentioned (i.e., Cook Island), to attend the observation. The sky was overcast, till past nine o'clock, when the clouds about the sun dispersed long enough to take its altitude, to rectify the time by the watch we made use of. After this it was again obscured till about thirty minutes past nine; and then we found, that the eclipse was begun. We now fixed the micrometers to the telescopes, and observed,

or measured, the uneclipsed part of the sun's disc. At these observations I continued about three-quarters of an hour before the end when I left off; being, in fact, unable to continue them longer, on account of the great heat of the sun, increased by the reflection from the land."

Captain Cook provided the first extensive description of the Island, including its name, since "...we kept our Christmas here, I called this discovery Christmas Island." He found little water but plenty of fish and large sea turtles, many of the latter weighing 100 lb or more.

Finally:

"During the time we lay here, the wind blew constantly, a fresh gale at East, or East by South, except one or two days. We had, always, a great swell from the Northward, which broke upon the reef, in a prodigious surf..."

Ten days after first sighting the Island, Captain Cook and his party set sail northward; eighteen days later (20 January 1778) he discovered the Hawaiian Islands.

Some 80 years following Cook's discovery, Christmas was known chiefly for the number of wrecks on its shores. The world's largest atoll possesses an unusual horn of land forming the southern side of the treacherous Bay of Wrecks. Both current and prevailing wind sweep into this Bay, forming an inevitable trap for sailing vessels unlucky enough to be caught on the windward side. These wrecks provided several involuntary residents of the Island, among them the officers and crew of the English whaler *Eriton*, wrecked on the eastern side of the Island in October 1836. Both Captain Benson (1838) and the ship's physician F. H. Tresillian (1838), published narratives of their eight-month residence, including a new map of the Island.

By the middle of the nineteenth century, guano was discovered on many equatorial atolls of the Central Pacific, which not only provided an opportunity for the first scientific examination of some of the islands, but also gave rise to what became a lengthy polemic over sovereignty. In

the case of Christmas, Maude (1957) has provided an informative discussion, including an obscure American claim -- under the Guano Act of 1856 -- of the U.S. Guano Company based upon John Stetson's "peaceable possession" of the Island in June 1858. Further, in 1872, the Island was visited by the *USS Narragansett* which "took formal possession for the United States," while in 1888 Sir William Wiseman took possession of Christmas on behalf of Great Britain as a possible relay station on the trans-Pacific cable route. As Maude points out, both American claims are of doubtful legality.

In 1882, the Island, still unoccupied, was taken possession of by a New Zealand firm which hoped to develop the commercial possibilities of both copra and pearl shell. Ten years later they relinquished their rights. Subsequently, the Island has been held under Occupation License by the Pacific Islands Company (1898-1902), Lever's Pacific Plantations (1902-1914), and the Central Pacific Coconut Plantations Ltd., the latter under the immediate supervision of Father Emmanuel Rougier. Father Rougier, with Louis Becke, wrote a notable book (1914) about the Island, which included numerous photographs taken before World War I. Rougier (1915, 1917, 1925) lived on the Island for many years with assets going to his heirs upon his death in 1936. The heirs sold their interests to the British Government soon after the end of World War II for 50,000 pounds sterling; the Government hoped to colonize the Island with migrants from the overcrowded Gilbert Islands.

Most of the companies and individuals who attempted to develop the Island's commercial prospects met with rather indifferent success, the difficulties of transportation and the vagaries of sustained drought playing no small part. Nevertheless, since 1946 the plantation has produced anywhere from 150 to 700 (long) tons of dried copra per year. A recent report of the Line Islands District Commissioner asserts that 11,000 acres are currently under cultivation, or about one-eighth of the total land area of the Island.

During World War II, the U.S. Government constructed an airstrip on the northern part of the Island, and garrisoned it with several thousand military personnel; upon the conclusion of the War all personnel were removed, though considerable quantities of rolling stock were left behind. One unconfirmed story asserts that the American military offered this equipment to the British authorities, but it was rejected. When the military then proposed to leave it, British authorities countered that they would have to pay duty, whereupon the Americans shoved the lot into the lagoon and left. Whether or not this account is entirely accurate, a dozen or so military trucks are today rotting in the lagoon near Bridges Point.

More recently (1956-1957), "Operation GRAPPLE," the British nuclear weapons tests, had its headquarters at Christmas with a detachment of RAF personnel remaining until June 1964. Finally, the U.S. nuclear weapons test of 1962 (April-July, September-November), "Operation DOMINIC," occupied the Island for about five months under the command of Joint Task Force Eight.

B. FANNING ISLAND

In June of 1798 the master and crew of the American whaler *Betsy* were bound northwest from the Marquesas. At 0300 on the morning of the 11th, the ship nearly foundered on the eastern shore of an atoll in latitude 3°54'N and longitude 159°20'W, but with consummate seamanship near-disaster was avoided. The ship's master and some of her crew went ashore on the west side of the atoll; while ashore Edmund Fanning (1833), the *Betsy's* master, found:

"On the south island, and near by a grove of cocoa-nut trees, whose fruit they lay strewed around, covering the ground from one to three feet deep, and seemed to have ripened and trees fallen for many years past..."

The atoll was indeed uninhabited, though Emory (1934, 1939) was later to infer a fifteenth century occupation of the Island, possibly by people from Tonga. Finally, a day later (12 June 1798), Fanning discovered and named Washington Island, 70 mi to the northwest.

Fanning Island was visited two or three times during the next thirty years, though still uninhabited. However, on 15 July 1848, Edward Lucatt (1851), "a merchant long resident in Tahiti," found "...a man of Crusoe habits had taken up his abode there with his family, and...had devoted himself to the rearing of pigs. His location is on the starboard side of the entrance to the lagoon..." A few months later, Lucatt established a "cocoa-nut oil business," but apparently, this was not sustained for very long. In 1852 Henry English acquired the title to the Island and employed about 200 Manihikians to manufacture coconut oil. To quiet his uneasiness at the appearance of American vessels, he was allowed to fly the British flag in 1857; four years later Keyte (1861) reported the visit of the steam sloop *Alert* on the occasion of the Island being taken under British protection. Subsequently, a Scotsman, William Greig, and an American, George Bicknell, joined the English and extended their copra operations to Washington Island, in 1860. Greig, his heirs and associates developed their commercial interests in both Washington and Fanning Islands during the next forty years.

After extensive litigation, Rougier finally bought both Washington and Fanning at public auction in Suva (30 November 1906); he paid \$125,000 and expected to export guano and copra. In December of 1906 he brought several sample bags of guano to Honolulu to be analyzed by Theo. H. Davies. Although the results of these tests are not known, it is unlikely that the guano was of high quality. With the exception of an unknown amount exported from Fanning between 1879 and 1885, none has been exported since. Significantly, in 1887 a boat load of lumber departed Honolulu to be used to construct drying sheds for copra; since then, copra has been the major economic asset of the Island, though not continuously.

Rougier's interests were finally purchased in 1935 by Fanning Island Plantations, Ltd., controlled by the Australian firm of Burns, Philp, Ltd. Since then the plantation has exported from 600 to 1,000 (long) tons of dried copra per year, the largest quantity being 1,119 tons in 1943.

The importance of Fanning Island in the public mind is undoubtedly associated with the Cable Station first established in 1902. It was the relay station between British Columbia and Suva until the new cable was completed in 1963. The Canadian-Fanning link was, at the time, the longest cable in the world (3,300 mi), and of great strategic importance.

The Germans acknowledged this importance in September 1914 by coming ashore (under a French flag!), cutting the cables, and destroying the batteries and other facilities at the Station. With the help of some heroic diving on the part of Greig, the Station was back in operation in two weeks.

In 1920 the British Admiralty sent no less a person than Lord Jellicoe to examine the Island and advise upon its suitability as a coaling station for British ships enroute to Australia from the Panama Canal. Although two naval engineers left Honolulu in May 1920 and spent several weeks on the Island, apparently no action was ever taken to convert Fanning to a fueling station.

Some twenty years later, at the commencement of World War II, Palmyra, Christmas and Fanning were all garrisoned with U.S. military personnel. Fanning probably had the smallest complement, stationed on the Island from April 1943 to June 1945. In addition, considerable quantities of munitions were placed there, including underwater mines. The thoughtless disposal of this equipment in late 1945 had serious implications several months later when S. G. Ross (1947) treated 95 cases of fish poisoning among a population of 224.

The military ordnance was disposed of by dumping it in the sea leeward of the Island, opposite both English Harbour and the Cable Station. It was Ross' judgment that "...the plankton and algae, as well as crustaceans and seaworms...on which fish feed, contain a poisonous principle emanating from deteriorating dumped war material." Fortunately, there were no fatalities.

Finally, in 1963 the Cable Station ceased operation and was offered for sale the following year for \$168,000. In 1966 the University of Hawaii leased the land and (15) buildings from the Gilbert and Ellice

Islands colony. The University intends to establish a scientific station for mid-Pacific investigations. The facilities will ultimately include a 2,000-ft airstrip near the Cable Station. Finally, a charge of \$25 per day for food and the use of all facilities, and \$200 for (one-way) air transportation is tentatively planned.

C. PALMYRA

Palmyra acquired the first of its two recorded names when an American vessel of the same name sought refuge there in November 1802; its second name, Samarang, was acquired during a similar incident in September 1840.

The first published account of the Island appears to be that of Lucatt (1851) who visited it in July 1848 in search of a reputed wrecked whaler (none was found); Lucatt was very impressed:

"It is without exception, the most singular formation I have seen. We landed on the east side, the vessel having suddenly shoaled her water when about two miles from the breakers observed upon the land... when we reached an islet, with its luxuriant foliage growing apparently from the very surface of the water; and we then discovered that Palmyra Island is more properly an archipelago of islets....The islets rise only a few feet above the level of the water....Sharks were numerous, and so voracious that they attacked both the boat and the steering oar as we were pulling ashore....Birds were innumerable... you could not move your foot without crushing eggs; and the cries of the birds...were deafening, and more peculiar than any combination of sounds I ever listened to....We made the island to be in latitude 5°51'N, longitude 162°10'W."

In October 1859, Gerrit P. Judd, agent for the American Guano Company, landed on Palmyra and laid claim to the Island on behalf of the Company. However, no claim was ever filed with the Department of State, and no guano was ever dug.

Three years later, February 1862, Zenas Bent and John Wilkinson were granted a petition by King Kamehameha IV enabling them to take possession of the Island under the Hawaiian flag. Captain Bent landed on the Island in April 1862, erected a flagpole, read the proclamation of annexation, buried it in a bottle at the foot of the pole, erected a building,

planted some vegetables, and left a white man and four Hawaiians on the Island. The Island became an official part of the Hawaiian kingdom in June 1862. In December of the same year, Bent sold his rights in Palmyra for \$500 to John Wilkinson, who in turn willed the Island to his wife Susan Kalama. Subsequently (in 1885) her rights were sold for \$550 to W. L. Wilcox, who in turn sold them to the Pacific Navigation Company.* The latter Company sent a man and his wife to Palmyra in 1885 to assert its claim. In December 1887, W. F. Allen took over the Island as trustee for the Company's creditors; a month later he sold it to William A. Kinney for \$750. Thus, in 26 years the Island's value had increased by 50 per cent!

In 1889 the *HMS Cormorant* annexed Palmyra to Great Britain in apparent ignorance of the Hawaiian annexation. Britain, however, never pressed this claim. Finally, in 1898 the 55th Congress specifically included Palmyra among the Hawaiian Islands.

In 1890 Kinney sold his title to the Island for \$500 to Judge Wundenberg, while Kalama's brother sold his divided interest to William Ringer for \$200. Judge Henry E. Cooper, of Honolulu, finally acquired Wundenberg's share for \$750 in 1911; a year later, after some litigation, Cooper received clear title to the Island.

The same year a British syndicate expressed renewed interest in the Island, and provided some stimulus to the American authorities in the form of dispatching the cruiser *West Virginia* (in February 1912) to Palmyra for the purpose of taking formal possession in the name of the United States. After this the British advanced no further claim to the Island.

Streets (1877) appears to have made the first scientific examination of the Island, although Rock's (1916) account was the most complete until modern times. Rock (1929) also published a popular account of the voyage, while Henry Cooper (1915), the owner, wrote another of the Island itself.

*According to Honolulu newspaper accounts, the selling price in this transaction was one dollar!

In 1920, the Palmyra Development Company was formed with an object of developing the commercial potential of the Island, particularly copra. The company sent William and Idelle Meng, and Edwin Benner, all of Honolulu, to the Island for a year's stay (1920-1921). Meng (1921) and his wife (1923) both published popular accounts of their residence on the Island. For various reasons, the commercial prospects for the Island were soon dropped by the Company, and the Island was finally sold for \$15,000 (19 August 1922) to Leslie and Ellen Fullard-Leo of Honolulu, the Island's present owners. The Fullard-Leo claim was contested by the Government -- on the basis that no private individual held legal title to the Island prior to the annexation of Hawaii to the United States -- but was finally sustained in behalf of the Fullard-Leo family by the Supreme Court in May 1947.

The U.S. Navy made a preliminary survey of the Island in 1938, with a larger party departing Honolulu on 14 November 1939; the Navy constructed a seaplane base, which was finally manned in January 1942. The Island was occupied by either military or civilian personnel until November 1949.

Like Christmas Island, Palmyra was occupied during Operation GRAPPLE, the British nuclear weapons test, in 1957 (April-June), and again during the DOMINIC nuclear tests in 1962 (April-July, September-November), the latter under Joint Task Force Eight.

Lastly, Palmyra was explicitly excluded from the Hawaii Statehood Act of 1960.

III. OBSERVING SITES AND INSTRUMENTATION

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III. OBSERVING SITES AND INSTRUMENTATION

A. OBSERVING SITES

1. Palmyra

U.S. Army surface site (Figs. 2, 3, 4, and 5). This site was established close to the edge of the lagoon near the southwest corner of the runway. An area of 100 by 200 yd had to be cleared of brush, which was accomplished by 7 March. (Before that date, the instruments were about 100 yd farther inland.) Some palm trees were left along the lagoon edge, since preservation of the natural beauty of the Island was a consideration, but these formed no restriction to the airflow near the instruments. The orientation of the lagoon shoreline at this site is 85° to 265° . The site afforded unrestricted off-lagoon exposure for wind directions south of east, but flow was off the Island for northeast winds. The elevation of the site was 6 ft above MSL.*

Instrumentation: MRI, instrument shelter, and Dines and Jardi recording rain gauges. The barometer was in the observer's shack about 25 yd back from the lagoon.

Causeway site (Figs. 2, 3, 6, and 7). This site was established in the center of the causeway after road access and site clearing were accomplished on 14 March. The causeway is oriented almost north-south. Vegetation was cleared for a length of 378 ft, affording unrestricted off-lagoon exposure for all winds except due north or due south. The site is adjacent to the deep water portion of the east lagoon, with no upstream restrictions for about three-quarters of a mile. Elevation was 6 ft above MSL.

Instrumentation: MRI, GMQ-12 (on 40-ft tower), and water temperature sensor 400 ft east of site at 1 m depth over 30 m of water.

*The anemometer cups of the MRI sets were 6 to 6.5 ft above the site elevation in every case.

Barren Island site (Figs. 2 and 8). This site was established to approximate an open ocean exposure as closely as possible. Shrubbery is insignificant near the site and exposure is unrestricted except for north winds. Access was possible by a combination of skiff (at high tide) and wading. The elevation was 6 ft above MSL.

Instrumentation: MRI.

U.S. Air Force GMD (Figs. 3, 4, and 9). The GMD equipment was housed in a concrete blockhouse near the southwest corner of the runway a short distance west of the U.S. Army surface site. The balloon launches were made a short distance west of the blockhouse. This site is in the western portion of the large cleared area, but some palm trees are nearby to the south and southwest along the lagoon shore.

Radar (Figs. 3 and 10). There was no location on the Island where palm trees did not potentially restrict portions of the radar horizon below 5° or 6° . Consequently, a tower was built on top of a 20-ft blockhouse on the northwest portion of the Island. The electronics were housed in an air conditioned shack which was also built on top of the blockhouse, and the antenna was elevated 67 ft above the ground (73 ft above MSL) -- higher than any palm trees in that part of the Island.

Photography (Figs. 3 and 10). The routine still and time-lapse cine photography (Bolex B-1) was accomplished from the top of the radar tower just below the antenna, giving an almost unrestricted horizon view. A second time-lapse camera (Bolex B-1) was operated from the lagoon shore near the mess hall, looking southwest across the lagoon. The stereo photography was accomplished from one station on the radar tower and a second station at the southwest corner of the runway (baseline 3,100 ft).

Ground-based radlometers (Figs. 3, 11, and 12). These were located on a platform built out over the lagoon (water depth 20 to 30 ft) from a piling off the southwest tip of the runway.

2. Fanning Island

U.S. Army surface site (Figs. 13, 14, 15, and 16). This site was located at Huachuca Point, affording good exposure to all winds from north through east through south. There were palm trees and shrubbery downwind, but most of the foliage was cut down near the site. Elevation was 5 ft above MSL.

Instrumentation: MRI and instrument shelter. The barometer was in the observer's shack, a rehabilitated boathouse southwest of the site.

Robitaille's Beach (Figs. 13, 14, and 17). This site was located on the immediate beach ridge on the southeast extremity of Fanning Island, affording the closest possible approximation to oceanic exposure. The only exceptions (rare) are for winds north of northeast. Sea spray was severe, resulting in external corrosion of the MRI housing, but did not affect the wind recording to any observable degree. Access was by small boat. Elevation was about 9 ft above MSL.

Instrumentation: MRI.

U.S. Air Force GMD (Fig. 18). The GMD releases were made from a field of dark coral rock 200 ft north of the house used for work-up of the soundings. This field is about halfway between the lagoon and the ocean just north of the cable station, or about 1,500 ft northwest of the Army surface site. The field is free of palm trees but has scattered lower shrubbery. It is partially ringed with distant palm trees, extending to elevation angles up to 6°. This results in inhibited surface wind flow, and the coral field tends to be considerably hotter than the lagoon shore during the day.

Photography (Fig. 19). The routine still and time-lapse cine photography (Bolex B-3) was accomplished from the top of a 25-ft wooden tower which was constructed on the roof of the former administration building of the Cable Station. The cameras were elevated 65 ft above the ground, affording an unrestricted horizon view in all directions except north-northwest, where there is a grove of casuarina trees about 90 ft tall. Some of these trees were topped during the middle of the program.

3. Christmas Island

U.S. Army surface site (Figs. 20, 21, 22, 23, and 24). This site was at the eastern extremity of Northeast Point. The entire Northeast Point area is flat, open, and treeless, offering no exposure problems. The only vegetation is moderately sparse shrubbery from 3 to 5 ft high. The elevation was 6 ft above MSL. The salt spray was severe near the beach.

Instrumentation: MRI and instrument shelter located on the rim of the slope to the beach. The barometer was in the observer's shack, 500 ft inland from the beach.

London site (Figs. 20, 21, 25, and 26). The site chosen was on Bridges Point, just southeast of London Village. It afforded excellent exposure to all winds, and served as the off-lagoon site on Christmas Island. The elevation was about 3 ft above MSL.

Instrumentation: MRI.

New Camp (Figs. 20 and 27). This site is the only example of one in the interior of an atoll. It is just under 1 km from the northeast coastline. The site is in an open field just outside the entrance gate of New Camp. The field has scattered shrubbery to 6 ft, none within 50 ft of the instrument, but there are tall palms about 400 ft to the east. The elevation was approximately 6 ft above MSL.

Instrumentation: MRI (two weeks only).

Aeon Point (Figs. 20, 28, and 29). This site is near the southeastern extremity of the Island, and the 64-mi round trip was a handicap to frequent inspection. The exposure is similar to that at Northeast Point, just inland from the beach ridge. The elevation was about 7 ft above MSL. Instrumentation: MRI.

U.S. Air Force GMD (Figs. 20, 21, 22, and 24). The GMD site was in the open area of Northeast Point, near the Army surface site. The recorder was in a building about 600 ft inland from the beach, and the releases were made from the antenna location, about 150 ft southeast of the building. Only sparse, 3-ft shrubbery occupied the area.

Double-theodolite pibal site (Figs. 20, 21, and 22). The balloons were released from a point about 100 ft north of the GMD releases. This was midway between the two theodolites, which formed a north-south baseline of 1 km.

Precision wind data (Figs. 20, 21, and 22). The first location of the totalizing anemometer was a short distance north of the GMQ-12 wind set; both instruments were mounted on 40-ft towers 500 ft inland from the beach ridge at Northeast Point, in the same generally open area. The second location of the totalizing anemometer was 20 ft inland from the beach ridge.

B. INSTRUMENTATION

1. Surface Instrumentation

All routine surface meteorological equipment, with the exceptions noted below, was provided by the Meteorological Support Activity, United States Army Electronics Command, Fort Huachuca, Arizona. A general discussion of the type of equipment used by the Army has been prepared by Jozy (1966). The specific equipment employed in the field during the Line Islands Experiment is listed in Table 2.

In addition to the equipment supplied by the U.S. Army, the University of Hawaii supplied seven instruments that, for the most part, were used only at Palmyra. These consisted of a Serdex microhygrograph, a thermograph, an Assmann psychrometer, a calibration mercury thermometer, a Dines tilting siphon rain gauge, a Jardi rate-of-rainfall recorder, and 24 plastic-wedge rain gauges; of the latter, half were exposed on Fanning and the rest on Palmyra.

The Serdex microhygrograph consists of an exposed animal membrane and provides a 24-hr record of the relative humidity; its full-scale response (0 to 100 per cent) covers 6 in. of chart paper and has an expected accuracy of ± 3 per cent over a range of 15 to 95 per cent relative humidity between 32° and 135°F. It was exposed at the Army site at Palmyra for 27 days (4 to 30 April), and was frequently checked with the Assmann psychrometer.

Table 2

A BRIEF INVENTORY OF SURFACE METEOROLOGICAL INSTRUMENTATION: LINE ISLANDS EXPERIMENT

Element	Instrument	Model	Serial No.	Scale Divisions	Recording Period	Remarks
CHRISTMAS ISLAND						
Pressure	Aneroid (2)	ML-102-D	1358, 2565	0.5 mb	--	Range: 745-1065 mb
Temperature- moisture	Microbarograph (2)	Belfort 5-800	209, 523	1.0 mb	7 days	--
	Whirled psy- chrometer	ML-24	--	1.0°F	--	Mounted in shelter
	Max-min ther- mometer	ML-4/5	--	1.0°F	--	--
	Hygrothermo- graph (2)	Belfort 5-594	1754, 3635	2.0°F/5%	7 days	--
Wind	MRI unit (2)	1072	251	1 mph/30°	30 days	--
Precipitation	MRI unit (2)	303	--	1 mph/30°	30 days	--

FANNING ISLAND

Pressure	Aneroid (2)	ML-102-G	138, 146	0.5 mb	--	Range: 745-1065 mb
Temperature- moisture	Microbarograph (2)	Belfort 5-800	521, 524	1.0 mb	7 days	--
	Whirled psy- chrometer	ML-24	--	1.0°F	--	Mounted in shelter
	Max-min ther- mometer	ML-4/5	--	1.0°F	--	--
	Hygrothermo- graph (2)	Belfort 5-594	1139, 1246	2.0°F/5%	7 days	--
Wind	MRI unit	1072	236	1 mph/30°	30 days	--
Precipitation	MRI unit	303	204	1 mph/30°	30 days	--
	Wedge gauges (17)	Tru-Chek	--	0.01 in.	--	--

Table 2 (cont'd)

Element	Instrument	Model	Serial No.	Scale Divisions	Recording Period	Remarks
PALMYRA ISLAND						
Pressure	Aneroid	ML-102-G	2375	0.5 mb	--	Range: 745-1065 mb
	Microbarograph	Belfort 5-800	406	1.0 mb	7 days/24 hr	24 hr: 4-30 Apr.
Temperature- moisture	Mercurial	Green 16A	13444	0.001 in.	--	0.6 in bore
	Whirled psy- chrometer	ML-24	--	1.0°F	--	Mounted in shelter
	Max-min ther- mometer	ML-4/5	--	1.0°F	--	--
	Hygrothermograph	Belfort 5-594	1250	2.0°F/5%	7 days	--
	Microhygrograph	Serdex	122-7007	1%	24 hr	Operation: 4-30 Apr.
	Assmann psy- chrometer	Casella	3579	1.0°F	--	Operation: 4-30 Apr.
Wind	Thermograph	Belfort 5-518	471	1.0°F	24 hr	Operation: 4-30 Apr.
	Mercury ther- mometer	Brooklyn Co.	21932	0.1°C	--	For calibration
	MRI unit (2)	1072	248, 252, 254	1 mph/30°	30 days	--
	GMQ-12	F 420C spd T 628 dir	3766, 2 5	-- --	-- --	-- --
Precipitation	MRI unit (2)	303	202	1 mph/30°	30 days	--
	Dines tilting siphon	Casella	164	1 mm	24 hr	--
	Jardi-rate-of- rainfall	Casella	2297	1 mm	24 hr	Operation: 28 Feb.-1 May
	Wedge gauges (14)	Tru-Chek	--	0.01 in.	--	--

Table 2 (cont'd)

Element	Instrument	Model	Serial No.	Scale Divisions	Recording Period	Remarks
USCGC SURVEYOR						
Pressure	Aneroid	--	WB 478	0.02 in.	--	On bridge
Temperature-moisture	Assmann psychrometer	Casella	3579	1.0°F	--	--
Wind	Aerovane sensor	Bendix	--	1 mph/1° dir	14 days	--
Precipitation	Visual reading	Belfort	--	0.1 in.	--	--
WEATHER SHIP JT						
Pressure	Aneroid	Wallace, Tiernan	WP 35247	1.0 mb	--	Range: 10-1060 mb
Temperature-moisture	Psychron	Bendix	566-2	1.0°F	--	Taken on bridge

The thermograph utilizes a bourdon sensing element with the full-scale response (5° to 150°F) covering 4.5 in. of chart paper; it was exposed at the Army site on Palmyra from 4 to 30 April.

The Assmann psychrometer (Casella) consists of two matched, sheathed thermometers in the familiar housing, with ventilation of 4 m/sec provided by a spring-driven fan; the instrument's accuracy is about ± 1 per cent relative humidity.

Both the Dines tilting siphon rain gauge and the Jardi rate-of-rainfall recorder are discussed by the Meteorological Office (1956); in both cases, the recording period was 24 hr and, again, both instruments were exposed at the Army surface site on Palmyra. Apparently, the clock spindle on the Dines rain gauge was bent in transit, resulting in an upward convex curvature to the ink trace when no rain had fallen; however, this defect is easily recognized and should not affect the siphoning mechanism, as can be seen from the discussion of instrument maintenance provided by the Meteorological Office (1963).

The mercury-in-glass calibration thermometer (Brooklyn Thermometer Co., Middleton, New York) was used as a field standard at Palmyra; it was used by Henry van de Boogaard to obtain field comparisons between the U.S. Army whirled psychrometer and the Assmann.

Additional surface instrumentation included eight MRI portable wind/rain gauge units. These units are purely mechanical and record wind direction, (hourly) run-of-the-wind, and rainfall (tipping bucket) on pressure sensitive paper. Three units were exposed on Palmyra and three on Christmas, while the remaining two were exposed on Fanning. (For exact location and site description see discussion in Section II.) All units except one (No. 236) were calibrated and checked at the factory and sent directly to the Line Islands; No. 236 was checked and tested at NCAR before being sent to Fanning. In addition to the MRI units, a GMQ-12 wind set was exposed on a 40-ft tower on the causeway site at Palmyra, and a second GMQ-12 on an identical tower at Northeast Point, Christmas Island. The GMQ-12 records instantaneous wind speed and direction; it was in operation for about 35 days on Palmyra and for

28 days on Christmas. A complete description of the instrument, including the relevant circuitry, is available from NCAR.

An Eppley pyrhelimeter, a ventilated infrared radiometer, and an ATS Zenith pyrhelimeter were operated at Palmyra by the University of Wisconsin. The instruments were exposed on a piling just offshore in the main lagoon. For additional details contact the Department of Meteorology, University of Wisconsin, Madison, Wisconsin 53706 (Attention: James Maynard).

2. Ship Instrumentation

During the Line Islands Experiment two ships assisted in making both surface and upper air observations: the *Surveyor* (Fig. 30) spent about 45 days (14 February to 30 March) directly attached to the field program, while *Weather Ship II* provided additional observations during its cruise between Hawaii, the Line Islands, and Samoa (13 March to 29 April).

Surface meteorological instrumentation aboard the *Surveyor* included a precision aneroid barometer, Aerovane wind sensors and recorder, an Assmann psychrometer, and three rain gauges. In addition, photographic equipment for still cloud pictures was included. Lastly, a bow-mounted thermistor was installed (in Seattle), although it was inoperative most of the time.

The precision aneroid (WB 478) was calibrated against the Pacific standard barometer on 10 October 1966 in Honolulu; at that time it had a zero correction. Upon the conclusion of the *Surveyor's* last cruise during the Line Islands Experiment (4 April 1967), the barometer was assigned a correction of +0.01 in. by the Port Supervisor, U.S. Weather Bureau, Honolulu.

The Assmann psychrometer (Casella No. 3579) consists of two matched, sheathed thermometers graduated in whole degrees Fahrenheit, and aspirated by a spring-driven fan; it is described in greater detail in Casella's Catalogue No. 877. With the conclusion of the field program, the two Assmann thermometers were calibrated in a water bath -- using an electrical thermometer with an accuracy of $\pm 0.01^{\circ}\text{C}$ -- over the range

23° to 29°C. Over this range both (matched) thermometers were 0.2°C too high; these corrections have not been applied to any of the Surveyor's observations listed in Appendix A4.

The rain gauges were the "remote visual type" and manufactured by the Belfort Instrument Corporation to U.S. Weather Bureau specification No. 450.2112. The gauge is 24 in. long and consists of the usual collector, measuring tube (10-in. capacity and graduated in tenths of an inch), and hydrophobic connecting tubing; rainfall is magnified by a 2:1 ratio. As noted above, remote visual reading was used only on the gauge mounted on the aftermast; the other two collectors were connected directly to the measuring tube and mounted on posts on both sides of the flying bridge about 15 ft apart.

The 24-hr rainfall amounts presented in Section V show a reasonable agreement, particularly between gauges 1 and 2 exposed on the flying bridge. On the other hand, amounts recorded by gauge 3, exposed on the aftermast, are consistently higher. There is some chance that the latter gauge may have collected additional water from parts of the mast or rigging, although this cannot presently be verified. Nevertheless, while the ship was on station (18-21 February and 14-25 March) gauges 1 and 2 recorded, respectively, 1.90 and 4.96, and 1.80 and 4.29 in.; gauge 3 recorded 2.20 and 5.70 in. Lastly, no consistent bias resulting from wind direction was apparent in a scatter diagram of amounts recorded by gauges 1 and 2 as a function of wind direction -- a notable and perhaps surprising result.

Surface instrumentation aboard *Weather Ship II* consisted of a precision aneroid barometer supplied by the Department of Geosciences, University of Hawaii. It is calibrated in whole millibars (10-1060) and is manufactured by Wallace and Tiernan (Belleville, New Jersey) from original specifications supplied by the U.S. Air Force. The instrument was tested in the pressure chamber of the U.S. Weather Bureau, Honolulu, prior to being placed on board, and was later compared with the Pacific standard (mercurial barometer). When the instrument was placed on board, the final comparisons, made by Jack Noonan of the Weather

Bureau, Honolulu, showed that a correction of 0.7 mb was needed to assure agreement with the Pacific standard, and that 0.6 mb must be added to obtain sea-level pressure (the barometer was 16 ft above the ship's waterline); thus the total correction, to be added, is 1.3 mb. However, through a numerical error involving the height above the ship's waterline, 1.2 mb was actually added to the observed pressures rather than 1.3; thus 0.1 mb must still be added to *Weather Ship II*'s pressure observations to obtain corrected sea-level pressure.

Wet and dry bulb temperatures were obtained with a ventilated Bendix "psychron" (Model 566-2). Both thermometers are graduated in whole degrees Fahrenheit, with the ventilation being provided by a battery-operated fan. The observations were made on the bridge 16 ft above the water by the ship's personnel.

Observations of wind speed were taken with an anemometer mounted high on the forward mast and read from a dial display on the bridge. The calibration characteristics of this anemometer are, unfortunately, unknown. Upper air instrumentation on both ships consisted of U.S. Weather Bureau radiosondes (Fig. 31). The data were received on board by means of the Bureau's portable receiver No. 66-61. On the *Surveyor* only minor trouble was experienced with the ground equipment, while aboard *Weather Ship II* "no trouble of any kind was experienced and only one ground set was used for the entire trip."

3. Upper Air Instrumentation

With exception of the *Surveyor* and *Weather Ship II*, all radiosonde instrumentation consisted of the standard U.S. Weather Bureau instrument transmitting on 1680 MHz and utilizing the "outrigger" thermistor, carbon humidity elements, and hypsometers (above 100 mb). On the other hand, the two ships used the 403-MHz transmitter, lithium fluoride humidity elements, and no hypsometers.

Ground receiving equipment at all island stations consisted of GMD-1B; shipboard equipment consisted of U.S. Weather Bureau portable receiver No. 61.

4. Aircraft Instrumentation

WV-3 aircraft, U.S. Navy VW-1 reconnaissance squadron. Complete details of all instrumentation are given in the *Weather Reconnaissance Manual* issued by the Airborne Early Warning Squadron One (1965).

Briefly, a continuous digital record of air temperature, humidity, and pressure was provided by the AN/AMQ-17 aerograph set. The data was printed out every minute with tolerances asserted to be $\pm 0.5^{\circ}\text{C}$ on temperature, ± 3 per cent on relative humidity and ± 5 mb for pressure.

The sensing elements, in the case of temperature and moisture, consisted of "a 7-in. probe mounted outside the aircraft's fuselage. The (electrical) resistance of the thermometer and hygrometer elements are varied by changes of temperature and humidity. A continuous-balance servo assembly in each channel maintains the electrical balance of a bridge network." For pressure, "a transducer is connected to the aircraft static pressure system and converts the mechanical energy produced by the changes in static air pressure acting on a bellows to an electrical signal required to operate the pressure servo assembly Changes in pressure unbalance the bridge network . . . which causes the servo motor to drive the balancing potentiometer in a direction to balance the bridge." In addition, pressure was also measured by an aneroid barometer (ML-401/U) connected to the aircraft static line; observations from this instrument were entered on the observing forms.

The ML-313/M psychrometer equipment was not operated on any of the flights, nor was the doppler radar.

During the three flights about 36 dropsondes (AN/AMT-6) were released.

The WV-3 aircraft was equipped with the APS-20E radar for PPI presentation and the APS-45 for RHI. These sets have been standard equipment on Navy weather reconnaissance aircraft for many years. The PPI scope was photographed in 16-mm time-lapse. More detailed specifications of the radar can be obtained on request.

B-47 aircraft, U.S. Air Force (Hickam Field, Honolulu). These aircraft were equipped with doppler radar, a Rosemont temperature sensing element, and, on nearly every flight, a 35-mm camera for (still) cloud photography; no time-lapse cloud cameras were operated on any of the B-47 flights. On most flights, the aircraft radar was photographed in 35-mm time-lapse.

It is not presently known what calibration procedures were normally followed regarding either the temperature sensors or the doppler radar.

WHOI, C-54Q aircraft (Woods Hole). A complete list of all instrumentation aboard the WHOI aircraft has been published by the Facilities Division of NCAR (1965). Additional details can be obtained from the Woods Hole Oceanographic Institution (WHOI), Woods Hole, Massachusetts 02543 (Attention: Andrew H. Bunker).

5. Calibration Procedures

All meteorological equipment supplied by the U.S. Army was calibrated before and after the Experiment at the Army's laboratory in Fort Huachuca; moreover, none of the Army equipment registered any calibration changes during the field program. In particular, Frank C. Harrison informs us that "the barometers were checked in a standard tabletop vacuum chamber (open end 20-in. diam, 34-in. depth, 1-in. glass door) and compared with a Hass barometer (Type MS-2, micrometer standard, 0 to 62 in. Hg, 0.6-in. bore, modified V-tube); the pressure was run up, down, and up, and read optically." Further, "the temperature standards used include a triple-point cell for water and triple-point cell for benzoic acid, and a platinum resistance thermometer; humidity was checked against a Cambridge system dew point hygrometer." The resulting scale corrections, for the pressure range of interest here, are displayed in Table 3; *these corrections have not been applied to the data recorded on forms WBAN 10A-B, nor to the tabulations in Section V.*

Other laboratory tests include the calibration of the Assmann thermometers and the "field test thermometer" -- both in use at Palmyra. All three thermometers were calibrated in a water bath at the University

Table 3

SCALE CORRECTION (mb) AT 75°F FOR U.S. ARMY ANEROID BAROMETER

Station (Serial No.)	Surface Pressure (mb)				
	1000	1005	1010	1015	1020
Christmas (1358)	-0.2	-0.2	-0.2	-0.2	--
Fanning (146)	+0.8	+0.8	+0.8	+0.9	+0.9
Palmyra (2375)	+0.4	+0.5	+0.5	+0.5	+0.6

of Hawaii using an electrical thermometer accurate to $\pm 0.01^{\circ}\text{C}$. Over the range 22° to 28°C , both Assmann thermometers recorded exactly the same temperature, though both were in error by no more than $+0.2^{\circ}\text{C}$ ($+0.4^{\circ}\text{F}$). On the other hand, the field test thermometer was in error by -0.2°C (-0.4°F) over the entire measured range (22° to 28°C). Thus, to correct the Assmann readings *subtract* 0.2°C (0.4°F) and *add* 0.2°C (0.4°F) to correct the field test thermometer.

While at Palmyra, van de Boogaard conducted some field calibrations between the Army screen thermometers, the Assmann psychrometer, and the field test thermometer; these hourly comparisons were conducted at the Army site for six days (22-27 April) and demonstrated that the difference between the test thermometer and the Army screen thermometer on the one hand, and the test thermometer and the Assmann on the other, were both, in the mean, -0.4°C . Stated otherwise: to correct the Army screen thermometer *subtract* 0.4°C (0.7°F). Again, these corrections have not been applied to the data entered on forms WBAN 10A-B, nor have they been applied to the tabulations in Section V.

A "Precision Micro Barometer" (American Paulin System, Los Angeles) was employed in the field to secure barometric comparisons between Palmyra, Fanning, and Christmas. Unfortunately, the instrument was damaged in transit to Honolulu upon the conclusion of the Experiment, and what few comparisons were completed are of doubtful reliability; they have not been utilized in any of the following discussion.

Lastly, the 24 wedge rain gauges (Tru-chek Rain Gauge Division, Edwards Mfg. Co., Albert Lea, Minnesota) were exposed on both Palmyra and Fanning. On Palmyra they were exposed every 0.1 mi along the runway (Fig. 3), while on Fanning the network was wider (Fig. 32) and carefully selected by Frank Robitaille, the observer. These gauges are made of plastic, graduated in hundredths of an inch, and have a capacity of 6.00 in. Huff (1955) has discussed a (favorable) field comparison test between this gauge and four others, including the U.S. Weather Bureau's standard 8-in. gauge.

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IV. THE OBSERVATIONS

The listings which follow give the time interval of data collection for the various types of data and for each location. If not specifically stated otherwise, the data may be assumed to be of satisfactory quality or better. Unless otherwise stated, all times are local (150°W) time; all dates 1967. The source of information and/or of copies of the data is NCAR. Virtually all of the data are available on microfilm.

A. PALMYRA

1. Surface Observations

Hourly surface observations (0800 21 February to 1400 21 April; 21 April to 1 May) were recorded on forms WBAN 10A-B, although eight nighttime hours are not available during the last period. Tabulations of most of the data are presented in Section V.

2. Upper Air Observations

Winds and temperatures are available every 6 hr (25 February to 21 April); in addition, serial soundings every 3 hr are available for selected days. A complete list of dates and times is presented in Appendix A. The original records are available at NCAR, with the raw data available on both punch cards and magnetic tape (thermodynamic data at each significant level; wind data each 6 sec for the first 5 min, and every 30 sec thereafter); duplicate card decks or tapes are available. Lastly, two soundings per day (0200 and 1400), hand-worked and uncoded, are immediately available.

3. Photography

Hourly sky panoramas were obtained with a Rolleiflex (70° field lens): good data coverage (2 March to 6 April), spotty coverage (7-17 April), considerable missing data (26-29 March, and after 6 April).

Time-lapse photography (Bolex No. 1, 58° field lens), 12 March to 21 April; considerable missing data on 2, 3, 4, 26 March, and 11, 14, 16 April. On most days, particularly those with active convection, regular photography was liberally supplemented by 35-mm color slides. All original data are available at NCAR; copies (on a limited scale) are available.

4. Radar Scope Photography

There was virtually no interruption of data (2300 2 March to 1400 21 April); the latter consists of 80 rolls of 16-mm Kodachrome II film in 100-ft rolls. Date, time, elevation angle, and range are clearly visible on each frame. In addition, numerous Polaroid prints are also available. Originals are retained at NCAR; copies are available.

5. Stereo Photography

With the exception of 26, 28, 30 March and 4, 5, 10, 14, 16, 18, 20 April, about 15 to 35 stereo pairs per day are available (22 March to 21 April). These data are located at the University of Wisconsin, Department of Meteorology, 1024 Regent Street, Madison, Wisconsin 53706 (Attention: A. Frederick Hasler). A detailed catalogue of all pictures is available upon request.

6. Radiation Data

The Eppley pyrheliometer, ventilated radiometer and ATS Zenith pyrheliometer were operative between 24 March and 21 April (0730-2030). The ventilated radiometer was operated 24 hr a day on an intermittent basis; the Suomi-Kuhn economical radiometer was flown each evening on the 2000 L sounding between 21 March and 20 April. Additional information may be obtained from the Institute for Environmental Research, ESSA, Boulder, Colorado 80302 (Attention: Peter Kuhn), or from the Department of Meteorology, University of Wisconsin (Attention: James Maynard).

7. Additional Surface Wind Data

The MRI wind set on Barren Island operated from 16 March to 19 April; the MRI wind set on the Causeway site operated from 14 March to 1 May, and the GMQ-12 wind set operated from 16 March to 21 April on the Causeway site with a few short periods of data loss. Microfilm copies of both types of original strip charts are available. Tabulated hourly means from the MRI charts appear in Section V. Additional information on GMQ-12 data may be obtained from the Department of Geophysics and Geophysical Engineering, St. Louis University, P. O. Box 8020, College Station, St. Louis, Missouri 63156 (Attention: Paul Hwang). Tabulated wind speeds at 1-min intervals should be available on duplicate punch cards or magnetic tape on request.

8. Additional Rainfall Data

The Dines tilting siphon rain recorder and the Jardi rate-of-rainfall recorder were operated from 21 February to 1 May. Both records are virtually complete (one chart per day), although there is doubt about some of the Jardi data (under review). Further, the clock spindle on the Dines was apparently bent in transit resulting in a slightly convex ink trace when no rain had fallen. However, this is easily recognized and should not affect the siphoning mechanism.

Additional rainfall data were collected from a network of 14 plastic-wedge gauges exposed at 0.1-mi intervals along the airstrip, with four additional locations roughly at right angles to the west end of the airstrip (Fig. 3). The network operated for 35 days and was usually read three times a day. A summary of totals appears in Section V.

9. Tritium Analysis

About ten samples of rain water and two samples of lagoon water were collected to be analyzed for tritium content. The time of each rainfall -- in some cases an individual shower -- is known, and it is likely that the cloud depth for such cases can be estimated. The analysis is being carried out in the laboratory of Willard Libby, at the University of California at Los Angeles; any significant results will

be reported to NCAR where they will be combined with the appropriate meteorological data and made generally available.

10. Atmospheric Electricity

Stig Rossby obtained numerous measurements of electrical properties of warm clouds in the vicinity of Palmyra, but details are not presently available. Interested persons should contact Rossby at NCAR for further particulars.

B. FANNING ATOLL

1. Surface Observations

Hourly surface observations (0700 1 March to 1400 21 April) were recorded on WBAN 10A-B forms. Most of the data is presented in Section V.

2. Upper Air Observations

Winds and temperatures were taken every 6 hr (4 March to 21 April); in addition, soundings were taken every 3 hr on selected days. A complete list of available soundings is presented in Appendix A2. Other details: same as Palmyra.

3. Photography

Hourly sky panoramas (Rolleiflex, 70° field lens) are available (2 March to 21 April), as well as time-lapse photography (Bolex 58° field lens) during 3 March to 21 April; on some days (12, 15-21 March) there is considerable missing data. Again, on all days, the above record was liberally supplemented by 35-mm color slides. All original records are retained at NCAR; copies are available on a limited scale.

4. Additional Wind Data

The MRI unit on Robitaille's Beach site operated between 28 March and 14 April. Microfilm copies of the original strip chart are available from NCAR. Tabulated hourly results appear in Section V.

5. Additional Rainfall Data

Between Cartwright Point, near English Harbour, and some 4 mi north of the Cable Station, 17 plastic-wedge gauges were exposed; for the most

part, the gauges were read every day (Fig. 32). Robitaille, who organized the network, has provided a photographic record of each gauge and its immediate surroundings. These (35-mm color slides) are available at NCAR, along with copies of the daily results. A summary of totals appears in Section V.

6. Lagoon Surface Temperature

Observations were made by Robitaille and Ralph Coleman during several crossings of the lagoon by small boat piloted by John Fleetwood and Bibou. Tabulations are available at NCAR.

C. CHRISTMAS ATOLL

1. Surface Observations

Hourly surface observations (1700 3 March to 1400 21 April) were recorded on forms WBAN 10A-B, most of which are presented in Section V.

2. Upper Air Observations

Winds and temperatures were taken every 6 hr (4 March to 21 April); in addition, soundings were taken every 3 hr on selected days. A complete list of available soundings is presented in Appendix A3. Other details: same as Palmyra.

3. Photography

Hourly panoramic photographs (Rolleiflex, 70° field lens) are available (7 March to 21 April) with considerable missing data on some days (17 to 20 March, 22 March to 9 April); in addition, time-lapse photography (Bolex, 58° field lens) is also available (14 March to 21 April), again with considerable missing data on some days (15, 18, 20, 25 March; 15, 18 April). This record was occasionally supplemented by 35-mm slides. Original data is retained at NCAR, copies are available on a limited scale.

4. Additional Surface Wind Data

The MRI unit at Bridges Point, London Village, operated during 14 March to 19 April, while a similar unit at Acron Point operated during 24 March to 6 April. The MRI unit at New Camp operated during

8-23 March, while the GMQ-12 wind unit operated during 22 March to 21 April at the main observing site at Northeast Point. Other details: same as Additional Surface Wind Data, Palmyra.

5. Precision Surface Wind Data

The precision totalizing anemometer operated from 22 March to 21 April. The data are in the form of total wind flow in hundreds of miles, totaled continuously from start, on paper tape. The data are continuous over the period of record except for 2.5 hr. On 7 April, the site was shifted from 520 to 22 ft inland from the beach crest at Northeast Point. In each case, the anemometer cups were 39.0 ft above the ground, or 45.0 ft above MSL. Format: punch cards or numerical printouts. Requests for copies of the data should be addressed to the Department of Meteorology and Oceanography, University of Michigan, Ann Arbor, Michigan 48104 (Attention: Gerald C. Gill).

6. Serial Double Theodolite Pibals

These were released at intervals of 20 min for periods of 8 hr. The start time of the serial period varied so as to give all hours of the day equal representation. The ascent rates are unknown, but are mostly near 700-800 ft/min. The theodolites were read at 20-sec intervals; in addition to 501 double theodolite pibals, 11 rawinsonde balloons were tracked by the same method (the rawinsonde printing angles each 6 sec). The baseline was 1,000 m, aligned north-south. The release point of all balloons was about 150 m from the windward coast at Northeast Point. A summary of the observing program appears in Table 4. Location and format: raw data is at the University of Miami; a copy at NCAR. It is probable that the data can be made available on punch cards or magnetic tape in raw or reduced form. For additional information write to the Institute of Atmospheric Science, University of Miami, P. O. Box 9115, Coral Gables, Florida 33124 (Attention: Mariano Esteque).

D. U.S. COAST AND GEODETIC SURVEY SHIP SURVEYOR

The itinerary of the *Surveyor* during the Line Islands program is presented in Table 5. Thus, the highlights of the cruise are a number

Table 4

1967 DOUBLE THIODOLITE PIBALS, NORTHEAST POINT, CHRISTMAS ISLAND

Series	Local Observing Period	Soundings	Ascents Tracked 360 sec or More	Ascents Tracked 120 sec or Less
1	5 Mar. 0441-1155	19	6	2
2	7 " 0620-1200	18	12	2
3	8 " 0400-1200	24	5	9
4	9 " 0520-1200	18	5	3
5	10 " 0400-1200	24	9	3
6	14 " 0800-1600	24	17	0
7*	16 " 0800-1600	23	8	3
8	21 " 1320-2040	20	6	3
9	22 " 1300-2100	22	15	0
10	23 " 1300-2100	22	5	1
11	27- " 2100-0500 28	22	15	2
12	28- " 2100-0500 29	23	14	2
13	29- " 2100-0420 30	20	15	1
14	1 Apr. 0800-1600	22	16	0
15	3 " 1300-2040	20	15	0
16	4 " 1300-2040	20	12	0
17	6- " 2100-0500 7	22	8	1
18	7- " 2100-0400 8	18	5	1
19	13 " 0400-1200	20	9	1
20	15 " 1320-2040	20	13	1
21	17 " 0800-1600	20	13	2
22	18 " 0820-1600	20	7	2
23	19 " 0800-1600	23	7	1
24	20- " 2100-0220 21	17	11	1

*No. 130, Series 7, missing.

of north-south sections, and a period of 12.5 days on station (a location which forms a triangle with Fanning and Palmyra -- 250, 200, and 200 miles on a side).

Table 5

ITINERARY OF *SURVEYOR* (LST)

Leave Honolulu	13 Feb.	0800
Leave 6N 158W	17 "	0100
Arrive Palmyra	17 "	1800
Leave Palmyra	20 "	1600
Arrive Fanning	22 "	0400
Leave Fanning	24 "	1700
Leave 3N 156W	25 "	1300
Leave 3S 156.5W	27 "	0700
Leave 3S 157.5W	27 "	1200
Arrive Christmas	1 Mar.	1000
Leave Christmas	1 "	1900
On Station 6.5N 158W	2 "	1400-1700
Arrive Honolulu	5 "	
Leave Honolulu	9 "	
On Station 6.5N 158W	13 "	0600-25 Mar. 2000
Arrive Fanning	26 "	0800
Leave Fanning	26 "	1700
Arrive Palmyra	27 "	0800
Leave Palmyra	27 "	2000
Leave 6N 158W	28 "	1300
Arrive Honolulu	31 "	

1. Surface Observations

Hourly surface observations (0800 16 February to 2300 4 March, and 0700 11 March to 1000 30 March), taken on the ship's bridge, were recorded on forms WB615-5, including hourly (bucket) measurements of sea-surface temperature, and 24-hr rainfall totals from three gauges. The

Assmann psychrometer readings were made on the forward deck in such a manner as to minimize ship effect on the measurements. The wind direction and speed are currently available in real time only. Analysis of the (Aerovane) wind velocity and course recorder charts is in progress at the University of Hawaii, with the goal of more refined estimates. Most of the observations are presented in Section V.

Lastly, surface observations aboard the *Surveyor* were the responsibility of William Curtis, with the generous assistance of Jim Perry.

2. Upper Air Observations

Radiosondes were released every 6 hr (16 February to 4 March, and 10-30 March) and tracked optically with a single theodolite. In addition, soundings every 3 hr were made on selected days. In all, 165 successful soundings were taken, achieving a mean pressure altitude of 25,289 m with the highest reaching 36,031 m. Winds were obtained on 116 soundings, the mean height of the balloons being 1,789 m, with a maximum height of 7,100 m. The complete observational record is presented in Appendix A4.

Raw data are available on either punch cards or magnetic tape (thermodynamic data at each significant level, wind data every 30 sec); duplicates of either are available. These are reduced data tabulations on punch cards or magnetic tape (exact format optional). Two soundings per day, handworked and in coded form, are also available. Original records are retained at NCAR.

Lastly, the upper air program aboard the *Surveyor* was the responsibility of M. Fields (in charge), E. Iverson, and J. Musumeci, whose able services were offered to the Line Islands Experiment by the U.S. Weather Bureau.

3. Photography

Hourly panoramic photographs (Rolleiflex, 70° field lens) are available (22 February to 4 March; 10-29 March) along with numerous 35-mm slides during the whole period. All originals are retained at NCAR; copies are available on a limited scale.

4. Oceanographic Data

The oceanographic program conducted on both cruises has been fully described by Wyrtki (1967).

E. WEATHER SHIP 11

The itinerary of *Weather Ship 11* is displayed in Table 6; briefly, she assisted the Line Islands Experiment during her cruise between Hawaii, the Line Islands, Samoa, the Phoenix Islands, and Hawaii, taking one radiosonde per day and hourly surface observations.

Table 6

ITINERARY OF *WEATHER SHIP 11* (LST)

Leave Honolulu	10 Mar.	1400
Arrive Palmyra	15 "	1500
Leave Palmyra	18 "	1600
Arrive Fanning	20 "	0900
Leave Fanning	21 "	1400
Arrive Christmas	22 "	0900
Leave Christmas	25 "	1030
Arrive Pago Pago	8 Apr.	1600
Leave Pago Pago	12 "	0830
Arrive Honolulu	1 May	1100

1. Surface Observations

Hourly surface observations (10 March to 1 May) were taken from the ship's bridge and recorded on a form equivalent to WB615-5 used aboard the *Endeavor*. The original observations are available on microfilm.

2. Upper Air Observations

The upper air program consisted of one radiosonde per day (2300 GMT) during the period 13 March to 28 April; no wind observations were made. The 33 completed soundings achieved an average pressure altitude of

23,621 m, with a maximum of 31,240 m. A complete list of all soundings is presented in Appendix A5.

Again, the U.S. Weather Bureau provided both the equipment and the able services of William Sapp, the observer.

F. AIRCRAFT DATA: NCAR QUEEN AIR

1. General

During the Line Islands Experiment the NCAR Research Aviation Facility collected flight data through the operation of a research instrumented Queen Air. Generally speaking, the flight participation amounted to 60 research flights during a period of 53 days for a total of 265 research hours or an average of 5.0 hr per day. Including ferry flights, the total time comes to 310 hr.

The individual flights are summarized by flight track, altitude, and operational instrumentation, in Appendix B. Appendix B1 depicts, by flight number and date, the amount (hours and minutes) and type of data collected, and the aircraft track and altitude over which the data were collected. Appendix B2 lists the various instruments that were used at any time throughout the project. Finally, Appendix B3 depicts the various instruments that were utilized on any given flight.

Through use of these tables it should be possible to determine those flights for which the flight data should be acquired.

Upon requesting any particular Line Islands Experiment aircraft data, the requestor will be furnished with more specific information such as instrument specifications, plus details such as data format and meteorological observations.

2. Infrared Radiometer Operation

The Barnes IT-3 infrared thermometer was flown on the Queen Air on 37 flights, occupying about 138 hr (item 13 in Appendixes B2 and B3). This provided about 18,000 mi of sea temperature data in the region bounded by 2S to 10N and 156W to 165W. The majority of this time was

from an altitude of 500 ft but some data exists for altitudes up to 10,000 ft. An unobstructed view of the ocean surface was afforded through a port in the fuselage for all angles from the vertical to 60° from the vertical. The data format comprises strip charts at the University of Wisconsin, and analog tape records from ARIS at NCAR; analysis is well underway on the latter. For additional information write to the Department of Meteorology, University of Wisconsin (Attention: Robert A. Ragotzkie).

G. AIRCRAFT DATA: WOODS HOLE OCEANOGRAPHIC INSTITUTION C-540

1. General

A series of 12 flights were flown in the Line Islands region between 11 April and 10 May 1967. The departure of the aircraft from Woods Hole was delayed five weeks by maintenance difficulties, so that only the first six flights were made before 21 April, when most of the observations on the Line Islands ceased.

The meteorological parameters observed were: temperatures, humidities, winds, sea temperatures, solar radiation, cloud types and amounts, precipitation areas, turbulence and turbulent fluxes, and dust content of the atmosphere. The temperatures were measured by a thermistor which recorded on an L and N Speedomax recorder, and by the T-6 dropsonde. The humidities were measured by a thermistor covered by a wetted wick, by a dew point hygrometer, and by the carbon element of the T-6 dropsonde.

Winds were measured by the doppler radar installed on the aircraft and by the navigation of the aircraft. The doppler radar was frequently in error during the expedition. It is expected that good wind values can be obtained by checking against navigational winds and using the corrections found by flying 15-mi squares.

Solar radiation was measured by an Eppley pyrliometer. Vibration of the aircraft broke the wires on the original pyrliometer and a spare. The last few radiation measurements were made using a light meter, which will have to be calibrated before the record can be reduced.

Clouds were photographed continuously by a Bolex camera on the port side of the aircraft. Photographs were taken every 2 sec. Individual photographs were made with 35-mm cameras and with a Hasselblad camera. Photographs of the weather radar display (X-band) were made every minute to record precipitation areas. Turbulence and turbulent flux data were measured on an oscillograph. The measurements made were: vertical acceleration of the aircraft, airspeed fluctuations, pitch of the aircraft, temperature fluctuations from a platinum wire thermometer, and humidities from a microwave refractometer. A dust counter was used by William Marlatt of Colorado State University during the first three flights.

2. Infrared Radiometer Operation

Radiometric measurements were made on the 12 flights of the WHOI C-54Q. Each flight was about 8-10 hr and nearly half the total flight time was made in the sub-cloud layer at 800 ft. The Barnes IT-3 radiometer has a field of view of 3°. The time response was slowed to 10 sec to eliminate noise and increase sensitivity, so that small temperature changes over large distances could be detected. It is believed that changes of 0.1°C are detectable. The NIMBUS MRIR was operated only in the 10-11 μ channel; the scan mirror was fixed so that it looked straight down at all times. Response time was increased to 15 sec for the same reason as above. This measurement is in question because the aircraft hydraulic fluid was blowing into the scan mirror, and it has not been determined to what extent the readings were affected. The data is available in strip charts. For additional information, write to the Department of Atmospheric Science, Colorado State University, Fort Collins, Colorado 80521 (Attention: William Marlatt).

3. Plans for Reduction of Data

The psychograph, dew point, wind, and shortwave radiation data are being reduced at 2-min intervals throughout the series of flights. Extra observations will be read during climbs and descents and passages through clouds. Most of the reduced data, except the solar radiation data, will be printed out on a single line of computer paper. These

sheets will be sent to NCAR for distribution to meteorologists working on the Line Islands Experiment data.

The cloud movies will be measured and distributed as tabulations of heights of bases and tops of clouds. Cross sections will be drawn.

The short-wave radiation data will be read and printed on computer sheets giving the 2-min values and the computed total for the day at a given spot based on the value at the time of observation.

The original dropsonde data will be sent to NCAR or the University of Hawaii to be checked for errors and recomputation.

The turbulence runs will be reduced at Woods Hole to yield rms vertical velocities, horizontal turbulent velocities, temperature fluctuations, water vapor fluctuations, and fluxes of heat and water vapor. For additional information write to the Woods Hole Oceanographic Institution.

Summaries of the individual flights are presented in Appendix C, while the flight tracks are depicted in Fig. 33.

H. AIRCRAFT DATA: WV-3 AIRCRAFT, U.S. NAVY VW-1 RECONNAISSANCE SQUADRON, AGANA NAVAL AIR STATION, GUAM (FLIGHTS MADE FROM HICKAM AFB, HAWAII)

This aircraft is alternatively identified as the WC-121, or the radar picket ship. Three successful flights were made before the aircraft was recalled to track typhoons in the western Pacific. Routine data collected on each flight include time-lapse photographs of the APS-20 radar scope, height-finding data from the APS-45 radar, and all routine weather reconnaissance observations, but at more frequent intervals than normal (every 15 min). Time-lapse cloud photographs were taken routinely from both sides of the aircraft, supplemented by 35-mm slides. About nine dropsondes per flight were made on the 10,000-ft portion of the flight track.

The itinerary of the three flights is listed in Table 7, while the flight track is depicted in Fig. 34.

Table 7

WV-3 WEATHER RECONNAISSANCE FLIGHT SUMMARY

Flight No.	Local Date	Observations* (Local time) Begin End	Flight Track**	Missing Data (Half flight or more)
Alpha	25 Feb.	(Flight aborted during first hour - no data)		
Bravo	27 "	0430 1630	1	Doppler winds
Charlie	1 Mar.	0430 1630	1	" "
Delta	3 "	0500 1800	1	" "

*Total flight duration about 14.5 hr.

**Number refers to track shown in Fig. 24.

All data are available at NCAR and consist of tabulations, strip charts, and photographs. The dropsonde data is still unreduced. Inquiries are invited regarding current status.

I. AIRCRAFT DATA: B-47 AIRCRAFT, U.S. AIR FORCE 57TH WEATHER RECONNAISSANCE SQUADRON, HICKAM AFB, HAWAII

There were a total of 24 flights made by the B-47 aircraft. Routine data collected on each flight include doppler winds, radar-scope photography, and all routine weather reconnaissance observations each 30 min, recorded on AWS forms 24 and 35a (Recco code). It was not possible to mount time-lapse cameras in the aircraft, but the observer carried out a systematic program of still photography with a 58° field 35-mm camera. For most flights, slides were taken every 15-30 min from both sides of the aircraft; because of the altitude (30,000 ft), these slides cover a wide area. All flights were carried out at an altitude between 30,000 and 35,000 ft, mostly at 300 mb (30,000 ft); see Table 8 and Fig. 34. for flight listings and flight tracks. Copies are available from NCAR of standard data, tabulations, and the original photographic data.

J. AIRCRAFT DATA: C-97 AIRCRAFT, AIR NATIONAL GUARD, 146TH MILITARY AIR WING, VAN NUYS, CALIFORNIA (FLIGHTS MADE FROM HICKAM AFB, HAWAII)

These aircraft provided the major logistics support for the field stations in the Line Islands and were not equipped for weather observations. On most flights, however, at least one scientist was on board to operate one or more time-lapse cameras, and to take still photographs, notes on weather conditions, radar echoes, etc. Flight altitude was usually less than 5,000 ft on the short Palmyra-Christmas leg, and usually between 7,000 and 15,000 ft on the Honolulu-Christmas or Honolulu-Palmyra legs. For additional details, exact flight times, or copies of photographic data, write to NCAR. Flights for which significant photographic coverage exists are listed in Table 9 (this is not a comprehensive list of all flights).

Table 8

B-47 WEATHER RECONNAISSANCE FLIGHT SUMMARY

Flight No.	Local Date	Observations* (Local time) Begin End	Flight Track**	Missing Data (Half flight or more)
1	14 Mar.	1006 1535	1	Radar altimeter
2	15 "	1016 1544	1	
3	16 "	1043 1613	1	
4	21 "	1714 1203	Honolulu-OK 158W-Honolulu Honolulu-4N 158W Palmyra- Honolulu	
5	22 "	0742 1222	1	Radar camera
6	23 "	0717 1246	Honolulu-Palmyra and vicinity-Honolulu	
7	27 "	0716 1234	Honolulu-Palmyra and vicinity-Honolulu	Radar altimeter
8	28 "	1037 1529	Honolulu-Palmyra and vicinity-Honolulu	
9	29 "	1043 1548	2	
10	15 Apr.	1054 1619	2	
11	17 "	1000 1523	2	
12	18 "	1031 1557	2	
13	19 "	1024 1545	2	
14	20 "	0944 1504	2	
15	21 "	0936 1459	2	Radar altimeter (cloud pictures)
16	23 "	1207 1726	2	
17	25 "	0936 1513	2	
18	28 "	1040 1601	2	
19	1 May	1036 1548	2	Cloud pictures
20	3 "	0950 1506	3	
21	5 "	1037 1601	3	Cloud pictures
22	8 "	1034 1548	3	
23	15 "	1007 1533	3	
24	17 "	1045 1613	3	

*Total flight duration about 6.5 hr.

**Numbers refer to tracks shown in Fig. 34.

Table 9

AIR NATIONAL GUARD FLIGHT SUMMARY

<u>Date</u>	<u>Track</u>	<u>Remarks</u>
27 Feb.*	Honolulu-Palmyra	Stills only
5 Mar.	Honolulu-Palmyra-Christmas	--
6 "	Christmas-Palmyra-Honolulu	--
19 "	Honolulu-Christmas	--
20 "	Christmas-Palmyra-Honolulu	--
26 "	Honolulu-Christmas	Stills only
26 "	Christmas-Palmyra-Honolulu	--
1 Apr.*	Honolulu-Christmas	Stills only
2 "	Honolulu-Palmyra-Christmas	Stills only
3 "	Christmas-Palmyra-Honolulu	--
9 "	Honolulu-Christmas	--
10 "	Christmas-Palmyra-Honolulu	--
16 "	Honolulu-Palmyra-Christmas	--
17 "	Christmas-Palmyra-Honolulu	--

* U.S. Coast Guard C-130 included here for convenience.

K. SATELLITE DATA: ATS-1

The first ATS-1 picture was taken on 10 December 1966 and successful operation has continued up to the present. The listing in Appendix D is for all dates between 14 February and 10 May 1967, encompassing not only the intensive Line Islands Experiment period proper, but also an earlier period for which some supplementary observations are available from the *USC&GSS Surveyor*, and from Palmyra. Included also is a later period for which supplementary observations are available from Palmyra, from the WHOI C-54Q research flights, and from the USAF B-47 reconnaissance flights.

It is important to note that the listing applies to the hard copy photographs only, and *not* the analog or digital tapes. The photographs are of excellent quality and have a resolution of perhaps 3 mi near the sub-point, including the entire Line Islands area (Fig. 35). The picture ultimately to be derived from the tapes should have substantially superior qualities. The pictures with substantial distortion, occupying most of the period 1-27 March, can only be returned to undistorted presentation through digital methods. Unfortunately, only those for 1, 22 and 23 March have substantial digital tape coverage. On the other hand, the Line Islands region is *not* badly distorted, and the pictures are still of great value in qualitative analysis of cloud systems in the region of greatest interest. The main drawback of these pictures is that accurate gridding presents a more difficult problem.

The best procedure for gridding the ATS-1 pictures is not yet clear. Two sources for grid overlay information are the University of Wisconsin's Space Science and Engineering Center, 601 E. Main Street, Madison, Wisconsin 53706 (Attention: Kirby J. Hanson or Verner E. Suomi), and the University of Chicago's Satellite and Mesometeorology Research Project, Department of Geophysical Sciences, Chicago, Illinois 60637 (Attention: Tetsuya Fujita).

A comprehensive catalogue and users manual on the ATS-1 system is in preparation by Allied Research Corporation, under contract to NASA. Pending its production, additional details on the ATS-1 system or data availability may be obtained from the University of Wisconsin. Limited requests for ATS-1 pictures may be addressed to the University of Wisconsin, to NCAR, or to the ATS-1 Project Office, NASA, Goddard Space Flight Center, Greenbelt, Maryland 20771.

L. SATELLITE DATA: ESSA I

The polar-orbiting ESSA I satellite provided frequent coverage of the Line Islands area. The pictures cover a relatively narrow area (consequently, coverage is incomplete), but are of excellent resolution.

The listing in Appendix D2 includes most, if not all, picture swaths within about 10° of longitude of the Line Islands. For additional information or for the pictures themselves, refer to the appropriate ESSA catalogue.

M. SATELLITE DATA: ESSA III

The polar-orbiting ESSA III satellite provided daily coverage of the Line Islands area. The pictures from a given orbit overlap adjacent orbits to provide complete aerial coverage and are of uniformly good quality. The listing in Appendix D3 includes most, if not all, picture swaths within about 10° of longitude of the Line Islands. For additional information or for the pictures, refer to the appropriate ESSA catalogue.

N. SATELLITE DATA: ESSA V

The ESSA V satellite was launched successfully on 20 April 1967. The pictures are similar to those from ESSA III. Detailed listings are available in the appropriate ESSA catalogue.

O. SATELLITE DATA: ESSA IV AND NIMBUS II (APT SATELLITES)

An Automatic Picture Transmission (APT) receiving station was established on Palmyra. Usable pictures were provided nearly every day between 7 March and 21 April from both APT satellites. For a survey of cloud conditions on a particular day, the ATS-1 and ESSA III coverage is more comprehensive and more easily accessible than the APT pictures. For those interested in details of small-time changes, especially on days of less than complete ATS-1 coverage, or for those who need a picture at the particular time of APT coverage, the APT pictures may be the only ones to fill the gap. APT data is stored on stereo recording tape and on Polaroid prints (4 x 5 in.) at NCAR. Copies are available on a limited basis, and requests should be as specific as possible. A list of available APT pictures is presented in Appendix D4.

P. SATELLITE DATA: RADIOMETRIC

None of the satellites orbiting during the Line Islands Experiment had operative radiometers.

Q. GRAVITY MEASUREMENTS: PALMYRA AND CHRISTMAS

During the Line Islands Experiment, Alexander Malahoff of the Hawaii Institute of Geophysics conducted a gravity survey on both Palmyra and Christmas. Using a Lacoste & Romberg gravimeter, he determined the Bouguer anomalies at several stations on both atolls. His results for Palmyra (east and west ends of the airstrip), and two locations on Christmas (Meteorological Office, London Village, and Northeast Point) are presented in Table 10. These measured values differ by one unit in the first decimal place from those computed by the familiar formula (List, 1958, p. 488) based on the International Ellipsoid of Reference. This is not an insignificant difference for meteorological purposes; indeed, the discrepancy, in the case of Palmyra, leads to a difference of +0.2 mb in the gravity correction for surface atmospheric pressure -- a value comparable to the sea-level correction at most of the atolls in the Line Islands.

Table 10

GRAVITY MEASUREMENTS AT CHRISTMAS AND PALMYRA

Christmas Island (cm sec⁻²)

London Village	978.2401
Northeast Point	978.2290

Palmyra (cm sec⁻²)

East and west ends of airstrip	978.2542
-----------------------------------	----------

R. OTHER SYNOPTIC DATA

In addition to the above listed synoptic data collected in the Line Islands, the University of Hawaii is collecting the routine observations taken over the Pacific (130E-80W, 40N-40S) during the Line Islands Experiment. These will include original copies of aircraft reports, additional data taken from the New Zealand Daily Weather Report, synoptic magnetic tapes compiled from RTT intercepts at Fleet Weather Central, Pearl Harbor, and surface and upper air observations taken by EASTROPAC vessels in the eastern Pacific.

Further, a master (unanalyzed) synoptic series of charts (850, 700, 500, and 250 mb), including time and space cross section, aerological diagrams, etc., will be prepared and made available in a variety of ways (e.g., ozalid, microfilm, duplicate card decks).

Lastly, the EASTROPAC vessels conducted extensive cruises during February and March between 20N-20S, and 125W-90W; all vessels took meteorological observations, including rawinsonde (*USCGS Rockaway*) and radiosonde (*Jordan* and *Argo*). Details of the meteorological instrumentation will be discussed in a forthcoming report to be published by Texas A & M University (Department of Oceanography, College Station, Texas 77843). The major ship tracks are presented in Fig. 36.

S. SPECIAL PHOTOGRAMMETRIC STUDY: MAUI, HAWAIIAN ISLANDS

1. General

For the purpose of determining cloud motion and development from ATS-1 picture sequences, a ground-based camera network was established under the direction of Tetsuya Fujita on Mt. Haleakala, Maui, where high peaks on the islands of Maui and Hawaii would serve as gridding anchor points and where an unobstructed view is possible over a very large area from the 10,000-ft elevation vantage point.

2. Equipment and Procedures

The camera network established on Mt. Haleakala consisted of the following: (a) Two 16-mm whole-sky time-lapse cameras taking pictures

at 20-sec intervals. Wind direction and speed, temperature, humidity, and rainfall were also recorded in the photographs. (b) Two 35-mm cameras equipped with 35-mm lenses mounted on a turntable manually rotated 45° after each exposure. A panoramic view was taken at 20-min intervals using slow-speed fine-grain infrared film. (c) Two 16-mm wide-angle time-lapse cameras placed on the highest unobstructed point available, with one camera pointing toward the island of Hawaii and the other toward the south of Oahu, taking in Lanai and Molokai. The pictures were taken at 15-sec intervals. An example of a panoramic view is shown in Fig. 37.

Two camera stations including one camera system each of (a) and (b) above were established about 2 mi apart.

3. Dates of Operation

Whole-sky cameras: 13 March through 3 April 1967, except for several days between 20 and 25 March when weather did not permit operations.

35-mm panoramic infrared camera: 14 March through 3 April on days and times when weather permitted a schedule which coincided with ALS-1 schedule.

16-mm time-lapse camera: 14 March through 3 April on days when weather permitted. (There were some breakdowns during the period due to malfunction of cable releases.),

4. Location of Data

For additional information, write to the Department of Geophysical Sciences, University of Chicago, Chicago, Illinois 60637 (Attention: Tetsuya Fujita).

T. ADDITIONAL FIGURES

Figures 37-50 are included for general interest.

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V. SURFACE DATA TABULATIONS

INTRODUCTION

The hourly tabulations of most of the surface data parameters obtained during the Line Islands Experiment are presented in this section. They have been subjected to a preliminary screening, and many of the more obvious errors have been removed. We have presented the observations here because it is felt that they will be useful for many purposes in their present form. *The user would be well advised, however, to exercise caution in accepting these data uncritically.* In several instances, we are quite certain that errors exist, and these data are under review. Some specific examples of questionable data are mentioned below, but *the user is urged to seek up-to-date information from one of the co-editors if critical evaluation is required in any particular case.*

The wind directions are not to be trusted to better than 10° in an *absolute* sense, although *relative* changes of 10° are quite reliable. The trouble might arise from external and/or internal misalignment of the instruments, with the coarse scale divisions (30°) a contributing factor. It is believed that the application of constant correction increments to each instrument will improve matters considerably. We are attempting to determine these corrections by comparing observed wind directions from different sites on the same island and by comparing all these with the wind directions derived from the rawinsonde observations in the first few tenths of a minute after release. Until this work is completed, the user should *not* draw conclusions from comparing surface wind directions measured at different sites or different islands, although comparing *time changes* of wind directions should be a sound procedure.

The wind speeds can be read easily to the nearest 0.2 mph, and the instruments themselves are believed to be accurate to within 1.5 per cent in both an absolute and a relative sense. The major interpretation problem is the effect of the site. For the most part, this will be left to the

user and to future research, but a few of the obvious influences are noted below.

Palmyra. Barren Island is believed to be most representative of ocean conditions. The Causeway site is excellent, but wind speeds there are about 1 mph less than on Barren Island, and we believe that the difference is real. The U.S. Army surface site has about an equal percentage occurrence of offshore and onshore flow. We are convinced that most of the wind speed differences between the Army and Causeway sites are directly related to the angle of flow relative to the angle of the shoreline at the Army site (85-265°). Onshore flow greater than 30° results in wind speeds at the Army site being very close to those at the Causeway site. Offshore flow of about 15-30°, corresponding to greatest length of trajectory over land results in the greatest difference -- as much as 40 per cent lower than the Causeway site speeds.

Fanning. Robitaille's Beach site more closely approximates ocean conditions, unless winds are north of east-northeast. The wind directions at that site seem systematically high and are under review. The Army surface site has an excellent off-lagoon exposure for all easterly component winds, but the effect of obstructions to the flow downwind has not been determined.

Christmas. This is a large island, and no station on it is completely representative of oceanic conditions. The Northeast Point site seems to approximate oceanic conditions most of the time, excepting days with light winds. We do not understand the lower speeds measured at Southeast Point. The London site is very well-exposed, but is influenced strongly by the land and shallow lagoon areas upwind. New Camp is sufficiently screened by upwind vegetation that it exhibits a continental type diurnal distribution of wind speed.

All moisture parameters have been derived from wet and dry bulb temperature measurements. On the *USC&GSS Surveyor* these were made with an Assmann psychrometer, with care taken to minimize ship influences. On all islands, the shelter and instrumentation were standard (see Section III), and the user should keep the deficiencies of this procedure in

mind. All the sites (see Section III) were exposed to direct onshore flow, whether from the ocean (Christmas), a deep lagoon (Palmyra), or a shallow lagoon (Fanning). As already noted, the Palmyra site does not experience onshore flow for wind directions of 85° or less.

The reader is advised to refer to the section on pressure measurements in Section III before using the surface pressure data.

There is no reason to suspect any of the rainfall data of substantial errors, as sites and instruments were good, and wind speeds were always moderate. Nevertheless, the user will observe that there are differences between rainfall amounts measured at different sites on Palmyra and between the Dines and MRI instruments at the same site. We prefer not to attempt to explain these differences at this time.

*** SURFACE DATA			LINE ISLANDS EXPERIMENT											HOURLY OBSERVATIONS											***		
STATION NO. 91385			PALMYRA (ARMY SITE -- DINES)											FEB 1967													
			RAINFALL (MM & TENTHS)																								
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL		
21	M	M	M	M	M	M	M	M	M	10	0	0	0	0	0	1	0	8	0	0	0	0	26	9	54		
22	C	0	2	36	0	0	16	19	40	82	80	0	0	0	0	0	0	0	0	0	0	0	0	0	275		
23	0	4	4	9	16	1	6	2	4	3	5	3	3	8	2	18	0	2	0	0	0	6	0	0	96		
24	T	1	0	4	2	0	0	3	5	0	0	0	0	5	5	1	1	4	20	10	1	5	13	5	83		
25	C	3	5	5	C	0	0	1	C	0	1	2	25	110	82	45	22	0	5	6	11	5	15	28	424		
26	12	1	47	3	0	10	11	C	C	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	89		
27	J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
28	0	0	0	0	0	0	0	0	9	16	26	18	44	118	3	1	80	42	4	0	0	0	0	0	367		
TOTAL	12	6	64	57	18	11	35	25	58	111	112	23	72	241	92	65	103	56	34	16	12	67	54	42	1388		

M = MISSING DATA
T = TRACE

*** SURFACE DATA

LINE ISLANDS EXPERIMENT

STATION NO. 91305

PALMYRA (ARMY SITE - CHINESE)

HOURLY OBSERVATIONS

MAR 1967

RAINFALL (MM & TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	3	0	14	0	12	0	45	38	2	126
2	0	37	0	13	8	1	26	1	0	0	0	5	1	0	0	0	30	42	1	0	6	4	46	147	371
3	24	0	0	0	0	0	0	3	2	0	0	0	0	25	0	0	0	0	21	83	14	3	0	10	190
4	0	13	1	56	21	5	55	3	0	10	17	82	1	0	0	3	0	0	0	0	6	0	7	0	280
5	0	0	1	0	0	0	0	0	0	0	0	8	0	1	18	0	0	0	10	0	0	0	0	0	38
6	0	4	0	0	0	0	0	9	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	3
11	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	49
12	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	17
13	0	0	9	5	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	9	46	22	0	0	103
14	0	7	0	0	0	0	0	0	0	0	80	12	108	119	10	40	4	0	0	0	0	0	0	0	300
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	17
16	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	22
17	0	0	0	0	0	0	0	5	0	0	0	0	24	0	0	0	0	0	0	0	15	0	0	0	44
18	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	32	36
19	0	0	0	0	33	0	0	0	12	0	0	0	16	5	0	0	0	0	0	0	40	101	26	0	233
20	0	33	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	5
22	11	0	0	0	0	0	0	0	0	0	0	0	0	0	9	8	0	0	0	0	0	0	0	0	28
23	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	59	32	30	14	0	0	0	0	168
24	0	0	0	0	0	0	0	0	0	0	105	122	3	0	0	0	0	0	0	0	0	0	2	0	232
25	0	0	0	0	0	0	0	0	0	9	13	0	0	0	0	0	0	0	0	0	0	0	0	0	22
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	1	0	0	0	0	11
27	0	0	46	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	58	0	128
28	35	0	0	33	84	41	13	15	0	1	92	79	69	44	29	30	27	0	13	0	0	0	0	0	605
29	7	0	1	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	196
30	0	20	0	0	28	5	5	24	12	43	3	33	0	0	0	2	0	0	0	0	0	0	0	0	175
31	0	0	0	0	11	0	0	0	0	0	0	0	0	0	15	0	0	0	0	5	0	2	0	0	33
TOTAL	81	120	73	125	200	71	295	71	38	73	315	341	223	194	91	114	120	97	79	150	151	193	191	193	3589

M = MISSING DATA
Y = TRACE

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS ***												APR 1967			
STATION NO. 91355			PALMYRA (ARMY SITE -- CIMES)																											
DAY			RAINFALL (MM & TENTHS)																											
			LOCAL HOUR																											
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL					
1	15	5	1	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	0	0	0
2	0	0	0	29	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0	0	0	0
3	0	85	0	0	0	0	0	0	0	0	0	0	17	9	0	0	0	0	0	0	0	0	0	0	0	111	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	9	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	2	0	4	0	0	0	24	0	0	0	0
6	0	0	0	0	0	0	0	0	95	0	2	2	9	0	0	0	0	0	0	0	0	0	0	0	0	108	0	0	0	0
7	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	3	4	9	0	0	0	0	30	0	0	0	0
8	0	0	0	0	10	3	12	45	10	3	6	0	10	20	7	22	10	5	0	0	5	0	0	0	0	168	0	0	0	0
9	0	0	0	0	0	6	45	15	0	0	0	0	6	68	102	54	20	7	0	0	0	0	0	0	0	323	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	71	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	0	0	0	0
22	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0
23	0	0	0	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	3	3	3	76	0	0	0	0
24	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	2	1	0	0	7	0	0	0	31	0	0	0	0	0	0	0	0	0	0	0	0	0	15	56	0	0	0	0
27	0	8	0	0	0	0	0	6	3	27	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	74	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	10	166	5	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	20	109	12	117	225	88	69	118	112	30	41	2	48	97	130	83	30	37	4	9	19	26	41	10	1485					

M = MISSING DATA
T = TRACE

*** SURFACE DATA ***
 LINE ISLANDS EXPERIMENT
 STATION NO. 91385 PALMYRA (ARMY SITE -- PRII)
 FEB 1967

HOURLY OBSERVATIONS

DAY	RAINFALL (MM & TENTHS)																								
	LOCAL HOUR																								
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
21	M	0	0	15	20	0	0	0	0	0	0	0	0	0	0	0	0	5	3	0	0	0	15	5	28
22	0	0	0	0	0	0	30	41	86	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	243
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	400
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	342
TOTAL	18	16	62	38	10	11	36	20	52	106	67	13	77	224	89	53	97	51	34	19	8	61	38	33	1243

M = MISSING DATA
 T = TRACE

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***		
STATION NO. 913F5			PALMYRA (ARMY SITE - L MHI)												MAR 1967														
			RAINFALL (MM & TENTHS)																										
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL				
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	10	0	0	0	33	38	0	100	0			
2	0	30	3	13	0	0	23	0	0	10	0	5	0	0	0	0	23	33	0	0	0	5	38	130	324	0			
3	23	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	51	38	18	3	5	157	0			
4	0	10	0	0	0	0	38	18	0	0	0	0	0	0	0	0	0	0	0	0	3	0	5	0	253	0			
5	0	0	0	0	0	0	0	0	0	0	0	0	0	13	3	0	0	0	5	0	0	0	0	0	29	0			
6	0	3	0	0	0	5	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	24	0			
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11	0	0	0	0	0	0	0	20	10	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	0			
12	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	10	0			
13	0	0	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	38	23	0	0	82	0			
14	0	5	0	0	0	0	0	0	0	13	56	10	117	91	10	36	0	0	0	0	0	0	0	0	330	0			
15	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	10	3	0	16	0			
16	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	13	0			
17	0	0	0	0	0	0	0	0	0	0	0	0	15	3	0	0	0	0	0	5	3	0	0	0	26	0			
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	0			
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	69	69	13	0	200	0			
20	0	0	0	0	25	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	43	0			
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	M	M			
TOTAL	62	114	54	55	138	113	132	203	25	88	184	407	204	166	37	94	48	43	15	80	160	158	144	173	2931*				

M = MISSING DATA
T = TRACE
* = INCOMPLETE

*** SURFACE DATA ***

LINE ISLANDS EXPERIMENT

STATION NO. 91385 PALMYRA (ARMY SITE -- PR1)

APR 1967

DAY	RAINFALL (MM & TENTHS)																			HOURLY OBSERVATIONS					TOTAL
	LCCAL HOUR																			20	21	22	23	24	
01	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92
05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	61	25	3	3	31	6	57	122	74	0	5	0	38	82	94	72	26	11	0	3	11	3	0	0	729

M = MISSING DATA
T = TRACE

*** SURFACE DATA			LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***			
STATION NO. 91385			FALMYRA (CAUSEWAY - WRT)												MAR 1967															
DAY	RAINFALL (MM & TENTHS)												LCCAL HOUR																	
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL					
14	M	M	M	M	M	M	M	M	M	M	M	M	M	M	0	33	0	0	0	0	0	0	0	0	33					
15	C	0	0	0	C	0	0	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3					
16	C	0	3	C	C	0	C	0	0	0	0	0	0	0	0	20	0	0	0	0	0	0	0	0	23					
17	0	0	C	C	C	0	0	C	0	C	0	0	23	0	0	0	0	0	0	3	10	0	0	0	39					
18	0	0	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	23	31					
19	C	0	0	0	23	3	0	C	5	0	C	0	8	0	0	3	0	0	0	0	74	51	18	0	185					
20	0	36	10	C	C	0	0	C	0	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46					
21	0	0	0	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	3	13					
22	3	0	C	C	C	0	C	C	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3					
23	C	0	0	C	0	0	0	0	0	C	0	C	C	0	0	0	61	41	20	30	5	0	0	3	160					
24	C	0	0	C	0	0	0	0	C	0	119	79	3	0	0	0	0	0	0	0	0	0	0	0	201					
25	0	0	0	0	0	0	0	C	C	0	15	C	0	0	0	0	0	0	0	0	0	0	0	0	15					
26	C	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	0	3	0	C	0	3					
27	0	0	33	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0	25	3	C	15	0	84					
28	33	0	0	15	94	25	3	5	C	0	71	58	69	25	13	24	20	0	15	0	0	0	0	0	474					
29	3	0	0	3	C	10	114	0	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	130					
30	0	15	C	0	30	3	5	10	5	36	5	3	0	0	0	0	0	0	0	0	0	0	0	0	112					
31	0	0	0	C	3	C	C	0	0	0	0	0	0	0	3	0	0	0	C	0	0	0	3	0	9					
TOTAL	39	51	46	23	150	41	125	15	10	36	213	140	103	25	16	84	81	41	40	63	95	51	47	29	1564					
M = MISSING DATA T = TRACE																														

M = MISSING DATA
T = TRACE

*** SURFACE DATA		LINE ISLANDS EXPERIMENT													HOURLY OBSERVATIONS										***	
STATION NO. 91385		PALMYRA (CAUSEWAY - PR1)													APR 1967											
DAY		RAINFALL (MM & TENTHS)																								
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
2	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
3	13	0	0	0	0	0	0	0	0	0	0	0	8	0	3	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
5	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	5	0	0	0	70
6	0	0	0	0	0	0	0	3	61	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	11
7	0	0	0	0	0	0	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	126
8	0	0	0	0	0	5	8	43	15	0	5	0	3	23	0	5	13	8	3	0	0	0	0	0	0	133
9	0	0	0	0	0	0	13	5	3	0	0	0	5	30	51	20	3	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	3	0	0	0	16
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	28	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	25	3	16	80	133	38	30	90	92	16	135	39	24	53	54	25	16	98	0	21	3	31	0	0	0	1030

M = MISSING DATA
T = TRACE

*** SURFACE DATA ***		LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***	
STATION NC. 9195		PALMYRA (BARREN ISLAND -- MWI)												MAR 1967													
		RAINFALL (MM & TENTHS)																									
		LOCAL HOUR																									
DAY		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	TOTAL
16																											
17																											
18																											
19																											
20																											
21																											
22																											
23																											
24																											
25																											
26																											
27																											
28																											
29																											
30																											
31																											
TOTAL																											

M = MISSING DATA
T = TRACE

*** SURFACE DATA		LINE ISLANDS EXPERIMENT												MCURLY OBSERVATIONS												***	
STATION NO. 91395		PALMYRA (BARBERS) ISLAND -- 1967																									
DAY		RAINFALL (MM & TENTHS)																									
		LOCAL HOUR																									
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	
2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	
3	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	
4	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	
7	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	106	
8	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	
9	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	244	
10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	
11	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	13	60	0	0	0	11	46	R 245	11	3	3	3	11	56	23	84	62	21	6	0	8	0	0	0	0	0	677

M = MISSING DATA
T = TRACE

*** SURFACE DATA ***				LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS ***											
STATION NO. 91395 PALMYRA														FEB 1967											
				TOTAL CLOUD COVER (TENTHS)																					
DAY				LOCAL HOUR																					
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
21	M	M	M	M	M	M	M	7	8	8	6	6	5	8	7	8	4	10	9	10	10	9	9	10	8
22	8	9	10	8	8	8	9	9	10	10	10	10	9	8	8	8	10	5	10	8	8	8	10	5	9
23	6	10	7	8	7	7	8	8	7	7	10	8	9	10	10	10	10	9	10	10	10	10	8	10	9
24	10	8	8	10	7	8	6	8	9	8	9	5	7	8	10	8	10	10	10	10	10	10	10	10	9
25	10	10	9	9	8	8	8	7	8	10	10	8	10	10	10	10	10	10	10	10	10	10	10	10	9
26	10	10	10	9	10	10	10	10	10	6	8	5	5	7	4	4	5	7	10	8	7	7	8	8	8
27	10	10	10	8	10	10	10	10	10	10	9	8	8	9	8	8	9	8	4	7	7	10	10	10	9
28	10	10	10	10	10	8	8	8	10	10	10	10	10	10	10	10	10	10	8	8	8	4	3	4	9
MEAN	9	10	9	9	8	8	8	8	9	9	9	8	8	9	8	8	8	9	9	9	9	9	9	8	9

M = MISSING DATA

*** SURFACE DATA		LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***				
STATION NO. 91385		PALMYRA										FEB 1967														
DAY		STATION PRESSURE (MBS IN TENTHS, 1000+1)																								
		LOCAL HOUR																								
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
21	M	80	71	66	61	59	64	71	86	90	90	97	88	75	64	56	51	51	54	64	71	75	85	88	85	76
22	HC	71	66	61	59	64	71	86	90	90	90	97	88	75	64	58	58	58	61	61	73	80	85	86	86	73
23	86	73	66	63	64	66	78	85	91	100	98	95	88	73	61	64	64	66	64	66	75	80	86	86	86	78
24	80	66	61	59	58	61	66	81	86	91	91	91	85	78	64	58	58	61	63	66	71	80	81	85	85	72
25	83	75	66	64	64	68	75	81	86	90	91	90	86	78	71	68	71	71	71	76	85	88	95	98	107	80
26	98	90	84	88	86	88	91	95	100	107	105	98	88	81	75	75	76	80	86	91	100	105	110	110	110	92
27	102	85	80	78	83	90	95	100	108	110	110	103	95	86	81	76	76	81	88	95	102	105	110	110	110	94
28	102	98	91	90	91	90	93	103	110	119	112	108	98	90	89	76	83	96	96	97	100	105	107	103	103	96
MEAN		90	80	74	77	71	75	81	90	96	101	99	94	85	75	67	66	68	70	74	82	88	93	96	96	83

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***				
STATION NO. 91385			PALMYRA										MAR 1967														
DAY	STATION PRESSURE (MBS IN TENTHS, 1000+)												LOCAL HOUR														
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN		
1	M	86	81	80	80	86	94	100	102	105	107	97	80	73	64	63	64	66	73	86	90	100	132	100	86		
2	95	80	76	74	73	75	86	95	102	105	103	97	85	73	69	64	69	69	76	83	90	91	95	95	84		
3	90	76	68	66	68	75	85	90	90	90	90	83	76	69	59	56	60	63	69	73	75	83	85	85	75		
4	80	64	58	58	58	64	71	83	86	90	88	83	75	65	56	52	56	59	66	75	80	83	83	71	76		
5	80	71	64	64	64	68	76	85	90	91	95	93	83	71	66	61	59	64	73	76	80	85	86	86	76		
6	63	75	66	66	66	71	80	86	93	97	97	91	83	73	59	54	52	58	64	75	80	83	88	88	76		
7	81	71	61	58	58	64	68	78	83	88	91	85	73	61	51	46	46	47	54	69	78	85	86	83	69		
8	76	61	56	52	54	59	61	75	88	91	93	88	81	71	61	58	58	59	64	76	80	85	85	85	72		
9	83	73	68	68	68	73	83	90	100	105	100	91	85	73	63	58	59	56	66	71	78	80	80	80	76		
10	78	71	66	66	69	71	75	83	88	91	91	88	78	73	66	66	66	69	80	85	81	86	91	90	78		
11	85	75	69	64	68	71	81	90	93	100	93	93	88	78	69	66	66	71	78	70	83	98	91	91	80		
12	91	78	71	71	75	75	88	95	103	105	103	95	91	76	68	66	64	66	71	81	88	91	98	98	84		
13	86	81	75	75	75	78	85	95	98	102	105	98	88	80	73	73	73	78	81	86	91	95	100	95	86		
14	91	81	75	75	71	75	85	91	95	98	93	115	95	88	78	80	81	85	83	90	95	96	98	98	88		
15	93	88	85	83	85	88	100	105	110	112	110	105	102	83	81	80	78	85	90	100	107	112	112	112	96		
16	105	102	97	95	97	98	100	108	113	122	122	119	105	98	93	93	91	95	105	110	115	120	122	122	106		
17	119	112	108	105	105	105	112	112	125	129	130	125	112	105	95	93	93	95	98	105	112	115	115	113	110		
18	107	98	93	90	88	91	100	105	113	112	107	102	98	88	83	76	80	85	95	102	108	112	110	113	98		
19	102	86	81	80	81	83	93	100	105	110	112	120	93	85	86	83	83	86	93	105	119	124	122	119	98		
20	113	107	102	90	91	93	97	100	108	108	110	110	100	90	85	79	76	80	88	100	107	108	112	119	99		
21	119	100	97	93	93	93	95	105	108	115	119	110	103	91	81	75	73	75	85	93	97	103	105	105	97		
22	97	90	81	80	80	83	90	98	102	107	107	103	93	83	78	69	63	68	78	91	97	105	103	103	90		
23	98	88	80	75	76	78	81	90	100	103	102	100	91	85	81	75	78	85	97	107	103	112	113	115	92		
24	105	100	95	88	86	86	91	108	119	120	124	115	107	100	90	85	85	83	93	98	105	110	112	113	101		
25	108	100	93	93	93	97	102	105	119	120	119	115	102	90	83	76	76	76	85	95	100	105	110	108	99		
26	107	95	M	M	M	M	M	M	M	M	M	M	M	M	88	78	68	68	60	90	97	105	108	108	70		
27	100	68	86	81	85	88	90	98	103	112	110	100	95	86	75	73	71	75	80	86	88	91	93	95	90		
28	91	86	80	76	76	80	86	93	97	103	103	98	86	80	63	63	66	64	69	75	85	86	85	88	82		
29	80	66	59	58	54	58	64	74	83	81	80	69	54	47	44	47	44	50	50	64	68	73	78	78	65		
30	73	61	54	52	52	52	64	76	80	85	81	78	64	56	49	47	49	58	63	71	76	78	81	81	66		
31	78	68	64	61	61	63	66	76	83	88	88	80	71	61	54	52	51	58	64	75	81	83	91	97	71		
MEAN	93	83	77	75	75	78	85	93	95	103	102	99	88	79	71	68	67	71	76	86	91	96	98	98	85		
M = MISSING DATA																											

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT													HOURLY OBSERVATIONS													***		
STATION NO. 91365			PALMYRA													APR 1967															
			STATION PRESSURE (MBS IN TENTHS, 1000+)																												
			LOCAL HOUR																												
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN						
1	M	71	68	64	66	68	80	81	103	107	102	90	73	61	51	46	44	47	54	64	73	80	83	86	72						
2	80	68	64	61	64	71	75	83	90	95	95	88	80	69	61	58	58	58	71	78	88	91	93	93	76						
3	88	76	75	71	68	73	90	88	91	95	91	83	75	63	58	56	54	58	64	75	80	81	86	86	76						
4	81	69	61	59	63	66	71	81	85	86	85	81	71	64	54	49	47	52	58	66	71	75	78	75	69						
5	68	59	56	54	56	59	66	73	81	85	81	78	71	61	52	47	47	52	58	64	71	76	80	81	66						
6	76	71	68	68	73	76	83	90	93	95	91	86	75	63	51	52	44	47	51	69	75	83	88	91	73						
7	88	81	76	73	76	80	90	93	95	97	93	85	75	68	59	54	52	54	61	69	75	78	81	83	77						
8	75	66	61	58	64	75	71	78	86	88	81	80	71	68	58	58	51	54	47	61	68	73	78	78	68						
9	71	66	61	58	64	75	71	78	86	88	81	80	71	68	58	58	51	54	47	61	68	73	78	78	68						
10	81	80	71	68	75	78	85	91	102	105	103	100	91	83	76	69	68	69	75	83	91	93	100	102	85						
11	95	88	85	81	80	83	91	100	112	115	113	112	102	88	78	78	78	78	81	93	98	102	105	103	94						
12	97	93	90	84	90	91	95	100	112	115	110	105	98	86	78	75	71	73	80	90	93	95	98	95	92						
13	90	88	85	81	85	86	95	100	112	115	112	105	93	90	81	76	76	81	90	95	98	105	112	112	94						
14	107	98	97	93	93	97	105	112	113	115	113	108	98	98	91	90	90	95	105	112	115	119	125	122	105						
15	115	112	107	105	107	112	119	127	132	142	139	135	127	115	105	100	98	98	105	112	117	125	130	132	117						
16	127	120	113	110	113	120	125	127	132	132	129	122	115	113	107	105	107	112	117	124	127	134	135	134	121						
17	125	120	115	112	113	119	125	134	139	139	132	125	115	113	102	100	97	102	108	120	127	132	137	135	120						
18	130	125	119	120	122	127	132	137	144	146	146	139	129	115	110	105	103	105	115	124	129	132	134	130	126						
19	127	122	115	113	115	119	125	134	144	146	144	139	127	117	108	105	103	105	112	122	127	130	137	134	124						
20	130	122	117	112	115	120	125	137	139	146	139	134	119	112	103	100	100	100	105	123	124	129	135	134	122						
21	125	120	117	117	120	120	120	125	127	130	127	119	112	102	M	M	M	M	M	M	M	M	M	M	120						
MEAN	95	91	87	84	86	90	96	103	110	114	110	105	95	87	78	75	73	76	82	91	96	101	105	105	93						

M = MISSING DATA

*** SURFACE DATA ***				LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***												
STATION NO. 91385				PALMYRA												FEB 1967												1009 MBS												
				CRY BULB TEMPERATURE (FAHR IN TENTHS)																																				
				LOCAL HOUR																																				

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS ***															
STATION NO. 91385			PALMYRA										FEB 1967												1009 MBS			
			CEM POINT TEMPERATURE (FAHR IN TENTHS)																									
			LOCAL HOUR																									
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN			
21	M	744	746	738	746	M	M	731	735	761	753	752	759	762	785	776	757	745	676	752	746	739	748	746	749			
22	744	746	738	746	743	738	744	750	750	751	M	743	718	744	750	750	748	748	735	744	733	746	747	729	743			
23	741	730	739	746	740	738	739	743	749	760	752	754	767	749	768	752	756	758	752	747	744	754	743	747	749			
24	746	760	744	753	739	745	737	746	762	766	765	774	755	764	786	754	750	743	745	755	746	750	752	759	753			
25	747	751	747	750	748	742	745	737	753	762	756	766	757	756	751	749	738	748	749	746	741	743	745	740	749			
26	746	745	746	745	761	742	729	731	738	753	746	763	744	759	748	763	744	740	752	748	744	738	745	739	746			
27	729	725	728	747	727	716	728	729	742	754	753	750	778	780	781	764	752	744	745	739	744	742	756	745	745			
28	746	747	741	740	724	739	737	740	745	753	747	755	754	729	707	737	731	735	745	734	734	736	733	732	739			
MEAN	742	741	740	747	740	737	737	739	748	757	753	757	754	756	760	756	747	745	737	746	742	744	746	746	746			

M = MISSING DATA

*** SURFACE DATA ***		LFNE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS ***											
STATION NO. 91385		PALMYRA												MAR 1967											
		DRY BULB TEMPERATURE (FAHR IN TENTHS)												1009 MBS											
DAY		LOCAL HOUR																							
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1		797	793	792	789	759	784	790	793	812	829	828	840	836	850	840	778	809	798	770	790	759	770	770	740
2		779	770	776	767	758	772	763	776	788	761	789	802	805	801	815	821	770	761	778	760	761	762	760	748
3		750	755	757	753	760	761	775	781	789	809	821	821	798	767	808	809	795	799	780	761	778	769	779	780
4		777	775	776	754	762	757	768	778	793	775	783	777	800	816	821	810	810	807	778	768	792	790	798	787
5		799	788	781	798	792	790	792	794	820	823	813	782	815	810	787	790	802	792	782	788	787	785	791	795
6		790	790	788	782	779	771	791	788	802	788	809	790	811	824	831	816	812	807	808	798	803	800	801	800
7		800	795	797	797	795	800	800	807	811	831	832	832	840	838	839	840	832	820	808	808	807	807	803	814
8		798	800	798	799	797	799	800	811	825	833	840	840	848	845	851	845	841	821	810	809	809	810	808	806
9		808	804	803	800	800	804	804	801	820	832	840	842	843	844	839	839	830	822	809	808	810	809	806	818
10		801	798	800	797	795	793	795	803	822	830	837	839	850	840	818	831	820	810	804	790	796	800	800	811
11		796	791	792	800	798	799	780	780	770	776	788	791	808	815	812	814	818	810	808	806	805	803	802	804
12		788	791	801	802	798	800	801	811	819	828	830	840	843	847	841	834	823	820	810	804	803	810	802	814
13		802	802	798	783	791	800	802	810	821	822	831	840	848	848	836	776	776	767	772	786	789	790	795	804
14		801	793	801	800	798	801	802	810	802	804	774	776	758	757	767	760	767	772	786	789	790	795	795	800
15		801	800	789	794	793	790	791	802	820	826	830	831	830	832	832	838	829	825	810	809	802	792	800	794
16		791	792	772	790	783	791	794	804	819	830	825	834	840	839	841	822	816	809	806	806	804	809	810	810
17		810	810	786	810	810	810	810	818	822	830	838	840	797	818	832	833	820	823	817	813	810	810	810	816
18		808	810	809	810	812	813	810	813	819	828	829	830	833	837	839	837	836	830	818	819	816	811	799	778
19		797	790	794	802	781	800	805	798	789	811	800	822	773	799	801	812	818	813	807	786	750	735	760	762
20		774	748	745	747	790	792	794	801	818	821	828	832	831	840	827	832	818	808	806	804	801	800	800	802
21		802	799	798	792	797	794	796	802	817	826	839	832	843	840	840	840	834	814	801	791	822	780	800	790
22		795	795	792	788	794	790	789	782	812	782	790	806	814	825	808	823	821	812	807	810	806	806	806	803
23		808	808	804	801	790	780	800	813	819	820	831	817	830	839	831	810	757	751	763	749	750	761	770	772
24		770	770	781	782	779	781	780	792	802	808	745	764	780	790	821	803	808	800	791	792	794	799	790	792
25		789	782	782	781	782	778	778	790	803	800	800	808	819	820	821	808	803	820	799	806	804	805	807	800
26		800	802	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
27		800	792	780	792	794	796	792	808	817	820	829	827	837	832	835	832	821	817	798	782	800	802	808	796
28		770	778	785	767	759	762	762	774	788	769	760	758	771	780	749	778	781	757	773	789	782	780	776	773
29		800	780	780	782	780	777	757	772	771	789	790	801	821	821	812	824	821	813	808	793	788	795	800	795
30		801	782	794	801	781	789	778	780	791	792	796	770	796	806	817	800	799	800	804	800	801	806	805	802
31		800	800	800	797	779	794	795	811	821	819	830	838	840	814	821	832	818	797	801	781	797	778	761	806
MEAN		793	790	788	786	786	788	790	797	808	810	812	814	819	822	821	817	813	806	800	795	793	791	793	791

M = MISSING DATA

SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***			
STATION NO. 91385			PALMYRA										MAR 1967										1009 MBS			
DAY	CENT POINT TEMPERATURE (FAHR IN TENTHS)												LOCAL HOUR												24	MEAN
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	717	725	715	716	728	724	707	710	739	734	731	741	762	756	754	756	755	751	745	743	731	746	745	743	736	
2	738	745	738	732	740	737	736	728	729	744	741	745	746	748	748	750	757	743	736	735	736	744	745	741	741	
3	740	735	733	732	737	746	738	739	746	743	749	747	759	746	739	752	732	753	754	746	753	742	741	733	744	
4	746	748	749	743	744	729	748	753	745	746	749	753	754	765	764	752	752	741	743	736	749	749	756	746	749	
5	755	749	746	758	737	750	736	754	758	751	763	764	765	790	763	765	770	776	750	761	759	756	750	753	751	
6	764	760	756	751	754	750	748	743	745	750	758	760	754	764	765	775	756	758	764	775	783	783	768	772	761	
7	756	750	760	754	755	753	737	741	756	759	765	772	762	789	800	804	800	796	760	758	747	761	756	754	766	
8	751	753	754	753	764	752	771	773	755	788	787	787	776	775	756	777	777	760	762	753	762	754	757	770	765	
9	761	770	771	770	773	772	753	772	753	777	766	774	766	770	765	760	746	775	773	771	767	769	767	757	767	
10	744	743	735	741	745	744	746	753	758	761	765	760	793	800	796	804	780	784	757	748	753	746	737	766	761	
11	749	751	749	748	745	747	775	749	755	755	736	762	762	767	768	757	753	764	756	767	768	760	763	765	758	
12	769	770	772	770	761	757	755	752	757	759	760	770	770	773	774	772	781	775	794	771	783	780	786	770	770	
13	756	755	759	758	756	763	749	762	766	777	776	771	797	811	812	773	795	768	774	778	770	748	745	761	771	
14	761	763	758	771	765	755	783	781	782	785	767	764	750	744	742	742	743	743	741	749	755	760	759	751	759	
15	748	741	754	746	744	731	733	733	749	752	760	759	761	772	760	765	754	760	780	778	768	776	768	762	756	
16	753	753	748	745	751	745	746	751	765	778	766	781	787	789	807	770	808	759	763	755	763	762	769	769	766	
17	764	769	767	770	769	769	763	778	781	784	806	802	779	776	774	769	770	759	774	783	781	765	768	789	775	
18	794	792	793	781	792	784	753	765	751	769	766	774	774	774	774	769	770	759	774	783	781	765	768	789	775	
19	751	747	746	756	763	750	762	759	764	771	764	774	772	784	774	768	760	760	757	754	760	728	720	732	757	
20	726	740	708	708	745	760	751	771	780	779	784	787	753	763	756	762	738	740	749	749	752	750	757	734	753	
21	759	760	762	774	765	768	730	739	739	747	755	759	770	770	773	784	775	763	798	777	766	777	770	778	746	
22	769	752	759	759	758	758	750	753	759	757	760	755	767	787	796	789	777	764	754	740	756	756	753	754	765	
23	769	769	781	761	765	763	771	770	779	790	789	763	768	770	773	773	760	741	736	722	721	733	735	747	760	
24	763	753	753	761	758	753	749	754	742	755	737	731	728	737	764	770	769	761	773	770	762	760	787	777	757	
25	749	751	751	752	750	751	742	747	753	766	757	764	807	789	781	764	744	763	759	756	758	766	754	757	760	
26	773	766	M	M	M	M	M	M	M	M	M	M	M	771	761	766	763	762	772	768	767	766	761	760	767	
27	764	776	754	759	749	746	743	745	753	753	769	766	777	758	775	773	770	777	779	776	776	762	767	764	764	
28	757	753	752	756	739	749	748	753	745	742	750	751	767	760	765	768	771	776	758	753	753	757	755	759	756	
29	752	752	753	752	752	749	755	760	779	751	759	766	763	759	752	765	763	770	772	763	769	765	773	773	762	
30	756	767	775	772	781	764	756	756	765	764	761	748	744	767	775	773	759	773	785	785	783	772	783	783	770	
31	758	758	760	764	744	755	760	756	777	764	779	762	782	784	799	906	802	771	767	768	766	757	750	736	768	
MEAN	757	755	754	754	754	752	750	754	758	762	763	764	769	771	771	770	765	764	764	761	761	760	761	760	761	
M = MISSING DATA																										

M = MISSING DATA

*** SURFACE DATA PALMYRA
 STATION NO. 91385
 LINE ISLANDS EXPERIMENT
 HOURLY OBSERVATIONS
 APR 1967 1009 MRS ***

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	753	769	800	900	797	909	790	804	780	800	800	801	808	814	814	818	819	804	803	805	804	809	809	809	800
2	807	801	803	749	761	770	780	788	818	813	828	829	840	841	840	823	823	800	792	796	800	794	800	799	806
3	774	781	790	782	778	781	783	798	812	819	824	838	793	830	831	829	830	811	810	810	804	806	810	807	806
4	802	803	804	810	800	800	800	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810
5	790	798	791	780	790	791	784	808	817	827	830	836	835	840	840	840	840	829	800	778	797	780	791	801	807
6	803	804	804	801	794	808	811	810	780	788	813	825	820	833	839	840	828	827	817	816	815	814	812	811	813
7	811	811	810	804	811	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810
8	810	809	810	801	780	788	784	780	780	780	780	780	780	780	780	780	780	795	796	796	801	804	806	807	794
9	804	803	800	794	800	794	786	773	795	810	820	822	828	780	782	748	731	770	771	765	776	783	771	767	788
10	800	801	800	810	800	799	794	801	820	819	820	831	812	829	828	824	823	817	810	808	803	802	800	802	810
11	801	800	802	795	800	800	804	810	820	822	830	833	835	840	833	830	830	820	819	810	808	812	811	810	816
12	807	806	804	801	804	803	805	810	822	832	836	840	841	840	831	830	830	830	804	819	817	816	817	818	820
13	816	813	812	810	810	810	810	819	824	830	840	838	841	838	834	830	833	822	820	820	820	818	811	804	822
14	812	810	811	809	810	808	810	817	823	830	836	838	845	840	832	834	830	823	820	819	814	813	812	811	821
15	810	810	808	810	810	810	810	812	821	830	830	842	850	841	839	832	830	821	817	817	819	818	817	812	821
16	810	810	805	805	806	810	810	817	825	831	843	841	830	842	840	838	838	827	820	815	815	815	812	810	821
17	810	810	809	809	805	805	810	818	825	830	833	846	840	846	840	831	830	823	819	820	811	816	812	812	822
18	810	808	800	794	796	795	800	809	830	843	852	850	861	861	852	857	852	830	822	820	815	812	811	816	825
19	811	815	812	810	810	812	810	782	820	840	848	848	844	850	850	821	826	827	820	813	820	814	810	811	822
20	812	817	814	812	810	809	811	817	820	822	826	830	840	840	850	841	836	819	811	819	819	814	812	798	821
21	805	807	806	770	780	770	780	785	823	832	829	830	831	830	830	830	830	827	820	815	815	815	812	810	806
22	805	807	806	770	780	770	780	785	823	832	829	830	831	830	830	830	830	827	820	815	815	815	812	810	806
23	805	807	806	770	780	770	780	785	823	832	829	830	831	830	830	830	830	827	820	815	815	815	812	810	806
24	805	807	806	770	780	770	780	785	823	832	829	830	831	830	830	830	830	827	820	815	815	815	812	810	806
25	805	807	806	770	780	770	780	785	823	832	829	830	831	830	830	830	830	827	820	815	815	815	812	810	806
26	805	807	806	770	780	770	780	785	823	832	829	830	831	830	830	830	830	827	820	815	815	815	812	810	806
27	805	807	806	770	780	770	780	785	823	832	829	830	831	830	830	830	830	827	820	815	815	815	812	810	806
MEAN	803	804	805	800	798	799	799	804	815	822	823	829	829	830	831	826	821	817	809	809	808	806	806	806	813

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS ***												
STATION NO. 91285			PALMYRA										APR 1963												
			CEW POINT TEMPERATURE IF AHR IN TENTHS										1009 MBS												
DAY	LOCAL HOUR																								
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	735	751	771	767	771	761	750	745	761	765	755	757	756	757	761	755	771	759	771	759	771	759	759	768	763
2	785	789	783	781	766	743	731	747	733	759	772	776	773	775	773	781	638	766	763	768	771	769	770	787	763
3	759	750	750	744	744	737	753	753	753	745	745	789	789	789	783	784	752	773	756	756	729	749	737	731	759
4	743	749	764	773	773	759	761	743	744	746	756	748	751	747	743	747	756	746	751	740	746	743	750	751	751
5	745	746	760	751	737	748	751	758	752	758	754	747	747	741	742	748	756	756	748	750	753	756	751	758	751
6	754	751	753	751	756	752	744	766	741	737	752	770	776	776	778	773	762	758	756	756	755	759	758	754	758
7	754	754	747	755	754	57	767	760	761	775	775	774	776	767	770	770	771	764	771	769	764	769	757	764	763
8	767	754	740	756	777	784	767	757	769	772	775	773	744	752	765	754	757	763	763	761	769	757	767	770	764
9	760	766	763	759	757	769	761	762	756	764	761	764	762	780	789	762	738	743	737	745	742	748	753	754	757
10	744	734	732	729	729	719	733	738	737	739	742	745	730	726	731	724	729	725	725	723	723	724	729	724	731
11	732	731	730	730	729	746	705	713	715	725	715	715	714	717	715	709	727	731	733	728	720	742	742	743	725
12	735	745	735	741	740	747	742	743	751	757	754	750	749	749	744	761	760	761	753	753	749	754	756	745	750
13	749	740	736	740	740	737	728	742	749	758	761	756	754	749	748	745	751	742	750	748	736	735	744	754	745
14	751	752	740	743	740	742	740	743	739	746	743	736	743	735	746	737	746	735	739	749	752	755	752	748	744
15	741	730	744	730	727	737	733	739	741	746	744	736	765	761	759	744	744	747	739	747	744	747	746	738	743
16	740	746	743	743	737	740	741	740	745	748	754	752	745	742	742	742	743	763	736	738	738	741	741	752	743
17	738	741	745	740	741	742	734	734	751	745	735	752	757	747	727	742	733	735	741	749	740	740	741	747	742
18	743	742	737	738	733	745	731	749	751	759	754	747	749	746	755	752	757	749	753	748	729	744	747	737	745
19	754	741	733	738	734	739	741	752	764	754	752	752	758	746	752	749	735	762	753	768	753	761	752	745	750
20	768	749	740	742	740	743	725	740	740	744	748	742	742	736	753	745	745	738	757	754	750	769	755	759	747
21	748	743	742	742	736	748	738	747	749	753	763	771	761	760	M	M	M	M	M	M	M	M	M	M	750
22	M	M	M	M	M	M	746	750	756	761	765	745	744	744	746	737	742	745	738	733	M	M	M	M	746
23	M	M	M	M	M	M	756	757	766	764	755	761	765	760	757	752	762	761	763	756	M	M	M	M	759
24	M	M	M	M	M	M	738	744	740	751	741	758	745	754	744	749	738	730	750	736	M	M	M	M	745
25	M	M	M	M	M	M	732	750	761	761	771	766	771	770	M	753	M	763	M	743	M	753	M	M	758
26	M	M	M	M	M	M	751	762	754	768	758	763	M	754	749	749	M	746	M	M	M	M	M	M	756
27	M	M	M	M	M	M	755	757	760	765	773	766	M	756	M	749	M	760	M	748	M	M	M	M	759
MEAN	749	748	749	748	746	747	742	745	750	753	755	757	755	754	753	750	745	750	750	749	748	751	750	751	750

M = MISSING DATA

*** SURFACE DATA ***

STATION NO. 914-S PALMYRA

LINE ISLANDS EXPERIMENT

FEB 1967 1009 MRS

SPECIFIC HUMIDITY (GRAMS IN 100 GRAMS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
21	181	173	175	172	179	174	178	182	187	192	197	201	204	208	212	216	220	224	228	232	236	240	244	248	252
22	181	173	175	172	179	174	178	182	187	192	197	201	204	208	212	216	220	224	228	232	236	240	244	248	252
23	181	173	175	172	179	174	178	182	187	192	197	201	204	208	212	216	220	224	228	232	236	240	244	248	252
24	181	173	175	172	179	174	178	182	187	192	197	201	204	208	212	216	220	224	228	232	236	240	244	248	252
25	181	173	175	172	179	174	178	182	187	192	197	201	204	208	212	216	220	224	228	232	236	240	244	248	252
26	181	173	175	172	179	174	178	182	187	192	197	201	204	208	212	216	220	224	228	232	236	240	244	248	252
27	181	173	175	172	179	174	178	182	187	192	197	201	204	208	212	216	220	224	228	232	236	240	244	248	252
28	181	173	175	172	179	174	178	182	187	192	197	201	204	208	212	216	220	224	228	232	236	240	244	248	252
MEAN	180	174	176	174	176	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177	177

W = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***					
STATION NO. 91385			PALMYRA										MAR 1967										1000 MBS					
DAY	SPECIFIC HUMIDITY (G/KG IN TENTHS)												LOCAL HOUR				MAR 1967										1000 MBS	
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN			
1	166	170	164	165	172	164	160	162	179	175	174	180	193	189	188	189	188	186	182	181	173	183	182	181	177			
2	178	182	176	174	179	177	177	172	172	181	180	182	183	184	186	185	190	180	176	176	176	181	181	179	179			
3	179	176	175	174	177	182	178	176	182	181	184	184	191	182	179	186	174	187	187	182	183	180	182	181	181			
4	183	184	185	180	181	172	186	167	182	182	185	187	188	178	194	186	186	180	181	177	186	184	183	184				
5	188	184	183	180	177	185	176	187	190	186	194	194	195	211	194	195	198	201	184	192	191	189	185	187				
6	194	191	189	186	187	185	184	181	182	185	190	191	188	194	195	201	189	190	207	201	206	206	197	189	192			
7	190	185	181	188	188	187	177	180	146	191	195	199	220	211	219	221	218	191	190	183	182	189	184	186				
8	186	187	187	187	184	186	155	200	151	210	210	210	202	202	198	195	203	182	193	187	193	189	189	195				
9	205	198	199	198	200	194	187	159	187	203	195	201	196	198	195	192	183	202	200	199	196	197	196	196				
10	181	181	176	180	182	181	183	187	191	192	195	192	214	218	215	222	205	207	189	184	187	182	177	195				
11	184	185	184	184	182	183	201	157	185	188	177	153	193	156	197	190	187	184	190	186	176	191	193	195				
12	157	198	199	198	192	189	188	187	149	191	191	198	198	200	201	200	215	201	214	199	204	205	202	198				
13	190	184	191	190	185	153	185	153	195	203	202	199	217	276	227	200	215	186	201	203	198	183	192	199				
14	192	194	190	199	194	188	206	205	208	208	196	153	185	181	180	180	181	180	180	184	198	192	191	186				
15	194	180	187	184	181	173	175	175	185	187	191	191	192	199	192	195	188	192	205	203	196	201	197	193				
16	187	187	184	182	186	182	183	186	155	203	205	205	210	211	224	198	224	151	153	183	193	193	187	197				
17	194	197	196	198	197	197	193	204	205	207	223	220	204	202	237	199	200	189	199	205	205	202	204	203				
18	215	213	213	205	213	208	187	155	190	197	195	201	201	198	198	198	191	201	206	205	195	197	211	201				
19	186	183	184	189	193	185	193	191	194	195	154	201	199	207	200	197	152	182	190	185	179	171	167	174				
20	170	174	160	163	182	151	186	154	204	204	208	210	187	194	189	193	178	184	184	184	187	185	189	188				
21	151	197	193	201	195	196	173	178	178	183	189	191	198	198	200	208	202	195	217	203	208	207	198	203				
22	157	186	191	191	190	190	185	187	191	189	193	188	196	209	215	211	203	184	186	192	185	189	187	194				
23	198	198	205	192	195	153	159	158	204	212	218	194	194	197	198	200	200	179	177	164	164	174	176	183				
24	193	187	187	192	190	187	185	182	180	188	173	174	172	177	154	158	158	192	200	198	193	192	203	202				
25	184	186	186	184	185	186	180	183	187	195	183	194	224	211	206	194	182	184	191	189	190	196	188	189				
26	200	195	197	191	195	182	181	182	187	187	197	196	203	191	201	196	154	153	199	197	196	195	205	191				
27	166	201	187	181	185	182	184	184	184	180	185	185	196	191	194	197	150	202	201	203	202	201	192	196				
28	160	187	180	184	178	184	184	187	184	180	185	185	196	191	194	197	150	202	201	203	202	201	192	196				
29	160	187	180	184	178	184	184	187	184	180	185	185	196	191	194	197	150	202	201	203	202	201	192	196				
30	160	187	180	184	178	184	184	187	184	180	185	185	196	191	194	197	150	202	201	203	202	201	192	196				
31	160	187	180	184	178	184	184	187	184	180	185	185	196	191	194	197	150	202	201	203	202	201	192	196				
MEAN:	190	199	198	195	198	197	185	189	180	193	184	194	197	199	199	198	195	194	194	192	192	191	192	191				

M = MISSING DATA

*** SURFACE DATA
STATION NO. 91385 PALMYRA

LINE ISLANDS EXPERIMENT

APR 1967
1009 PDS

SPECIFIC HUMIDITY (G/KG IN TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	176	185	199	196	198	192	185	208	145	197	152	208	188	192	189	190	192	189	199	191	199	191	191	197	193
2	206	210	226	205	190	181	173	183	175	191	199	202	202	202	200	205	127	185	193	197	199	197	212	209	194
3	190	185	185	184	182	177	177	183	169	182	194	211	210	218	207	208	213	208	189	189	173	184	177	174	181
4	181	184	194	200	200	191	192	181	181	163	189	184	185	185	178	181	184	189	183	166	179	183	181	185	186
5	182	183	204	185	177	184	185	190	186	190	188	184	185	180	181	181	189	189	184	185	187	189	185	190	186
6	188	186	187	186	190	187	182	195	179	177	186	198	202	202	203	200	193	190	189	189	189	191	190	188	190
7	188	188	184	198	188	190	196	192	193	192	202	201	202	196	198	198	199	194	198	198	194	197	190	188	194
8	196	190	192	190	202	207	196	189	197	199	201	200	181	186	194	187	189	193	193	192	197	184	196	198	194
9	191	195	193	191	189	197	192	192	190	194	192	194	193	204	211	180	178	181	177	182	180	184	187	188	190
10	181	178	175	172	173	167	175	178	178	179	180	182	173	171	174	170	172	170	170	169	175	170	172	170	174
11	174	174	173	173	173	182	159	164	165	159	165	165	164	166	165	161	172	174	175	172	173	180	181	181	170
12	176	182	176	179	179	183	180	181	184	190	185	185	185	197	182	192	191	182	197	197	195	187	189	182	185
13	174	179	177	179	179	177	172	180	165	190	193	169	158	185	186	182	186	181	186	184	177	176	182	186	182
14	186	186	179	181	179	180	179	181	179	183	181	177	181	176	183	178	183	176	178	185	187	188	187	184	182
15	180	173	181	173	171	177	175	179	180	184	181	177	195	192	191	182	181	184	178	184	181	183	183	178	181
16	179	183	181	181	177	179	180	179	182	184	188	187	182	180	181	180	181	181	177	178	178	180	179	184	181
17	178	180	182	179	179	180	176	175	182	182	176	187	190	184	172	181	175	176	180	185	179	179	184	180	180
18	181	174	177	178	175	182	177	185	186	181	188	184	185	183	189	187	180	184	187	184	173	181	183	177	183
19	188	180	175	178	178	179	180	187	196	188	187	187	181	183	187	184	177	193	187	196	187	186	186	182	185
20	197	185	179	180	179	181	170	179	179	182	184	181	181	177	187	182	183	178	190	188	186	197	188	191	183
21	194	181	180	180	177	183	178	183	185	187	193	199	192	191	188	185	185	185	185	185	185	185	185	185	185
22	M	M	M	M	M	M	M	182	185	185	192	194	182	186	183	177	180	182	178	175	M	M	M	M	183
23	M	M	M	M	M	M	M	189	190	196	194	189	192	190	187	187	192	192	193	189	M	M	M	M	191
24	M	M	M	M	M	M	M	178	181	179	196	180	190	182	185	184	178	185	185	177	M	M	M	M	182
25	M	M	M	M	M	M	M	174	182	192	199	195	199	198	188	188	188	188	188	188	187	M	M	M	190
26	M	M	M	M	M	M	M	185	193	188	197	190	194	M	188	185	185	183	M	M	M	M	M	M	189
27	M	M	M	M	M	M	M	190	191	195	200	196	M	189	M	185	M	192	M	184	M	M	M	M	191
MEAN	185	184	185	184	183	184	181	185	185	187	189	190	188	188	187	185	183	185	185	185	184	186	186	186	186

M = MISSING DATA

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS ***														
STATION NO. 91385			PALMYRA										FEB 1967 1009 MBS														
			RELATIVE HUMIDITY (PERCENT IN TENTHS)																								
DAY			LOCAL HOUR																								
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
21	M	907	874	889	924	870	849	M	M	840	807	766	860	860	876	822	963	697	968	855	846	928	946	867			
22	M	907	874	889	924	870	849	M	M	840	807	766	860	860	876	822	963	697	968	855	846	928	946	867			
23	M	907	874	889	924	870	849	M	M	840	807	766	860	860	876	822	963	697	968	855	846	928	946	867			
24	M	907	874	889	924	870	849	M	M	840	807	766	860	860	876	822	963	697	968	855	846	928	946	867			
25	M	907	874	889	924	870	849	M	M	840	807	766	860	860	876	822	963	697	968	855	846	928	946	867			
26	M	907	874	889	924	870	849	M	M	840	807	766	860	860	876	822	963	697	968	855	846	928	946	867			
27	M	907	874	889	924	870	849	M	M	840	807	766	860	860	876	822	963	697	968	855	846	928	946	867			
28	M	907	874	889	924	870	849	M	M	840	807	766	860	860	876	822	963	697	968	855	846	928	946	867			
MEAN																											

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT																HOURLY OBSERVATIONS										***	
STATION NO. 91385			PALMYRA																MAR 1967										1009 MBS	
DAY	RELATIVE HUMIDITY (PERCENT IN TENTS)																LOCAL HOUR													
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN					
1	767	798	774	785	901	792	757	758	786	730	726	722	784	736	755	929	837	255	839	915	821	959	919	945	816					
2	873	919	881	889	941	889	914	852	821	945	854	827	824	839	802	792	959	941	869	861	919	941	950	977	887					
3	968	936	923	931	927	950	885	869	868	868	868	784	860	932	797	829	810	859	916	950	920	915	942	856	885					
4	903	916	916	963	941	909	537	520	854	907	855	924	860	858	831	825	825	805	835	815	879	867	925	843	881					
5	864	819	890	876	834	815	830	875	815	789	849	942	850	936	925	921	901	947	891	934	908	904	891	883	884					
6	917	904	900	903	920	933	867	862	827	882	845	504	825	805	824	833	822	837	927	898	952	935	901	910	881					
7	872	863	884	867	875	856	811	805	833	790	802	821	805	853	881	889	900	924	853	845	817	861	844	852	853					
8	855	856	863	855	897	855	909	862	804	864	842	842	790	797	733	801	811	819	853	833	857	833	845	889	841					
9	914	893	901	905	914	901	844	510	803	837	785	800	778	786	785	773	760	850	860	885	869	877	881	856	850					
10	827	835	807	831	847	850	851	848	812	798	762	773	832	877	932	516	859	519	856	871	867	835	811	905	849					
11	855	875	867	843	839	863	582	564	550	933	541	509	861	854	865	830	807	861	849	881	885	868	884	881	876					
12	938	934	910	931	984	868	860	825	815	797	794	796	789	786	804	818	871	863	848	897	935	906	948	901	866					
13	864	856	880	921	892	884	840	853	835	863	831	800	827	886	925	991	920	960	898	925	919	572	501	889	891					
14	876	905	868	909	897	860	939	910	935	939	577	960	912	959	919	941	924	907	862	875	891	892	888	851	839					
15	839	823	916	855	850	821	825	796	792	786	794	790	798	821	791	788	782	808	906	902	893	947	901	900	839					
16	883	879	924	862	899	858	855	840	838	844	824	841	842	850	897	843	874	849	869	844	872	857	873	873	866					
17	861	873	938	917	873	873	873	878	875	860	901	885	943	870	852	818	859	843	862	898	906	906	894	902	875					
18	957	944	944	510	936	911	829	823	515	824	813	833	825	814	796	803	776	833	891	883	846	869	965	991	870					
19	959	866	855	860	942	847	869	880	921	878	889	855	955	952	914	865	826	841	849	900	968	976	875	906	891					
20	851	972	881	877	862	900	867	905	882	871	868	864	775	777	793	794	768	821	828	832	852	867	868	860	851					
21	868	880	888	943	901	917	802	812	772	770	759	787	789	789	804	834	825	846	991	956	948	991	905	960	864					
22	917	867	896	908	888	900	879	908	841	921	904	844	858	883	961	895	867	853	840	849	848	848	848	837	877					
23	881	881	927	876	921	947	909	870	875	507	903	838	817	800	829	886	945	968	914	913	909	910	889	920	893					
24	977	946	912	934	933	512	903	883	819	841	572	857	840	837	831	897	881	880	943	930	900	880	991	952	904					
25	875	903	903	908	899	916	885	866	848	893	868	865	961	903	879	865	824	831	876	848	860	881	840	868	878					
26	914	889	M	M	M	M	M	M	M	M	M	M	M	M	M	803	857	839	918	955	897	889	914	888	879					
27	889	947	916	896	863	847	850	813	811	803	821	820	822	773	829	818	817	867	918	995	927	922	1000	964	877					
28	959	920	895	964	936	959	954	933	879	915	968	971	986	1000	986	969	969	964	951	908	887	921	920	946	944					
29	912	912	508	912	920	972	977	964	969	879	872	835	827	872	821	824	827	870	889	905	938	905	914	914	897					
30	952	951	939	910	1000	921	929	925	917	913	892	928	843	881	870	914	876	914	939	952	943	893	931	939	920					
31	872	872	876	897	890	879	892	833	867	831	879	802	834	834	553	953	908	858	905	897	951	876	912	919	883					
MEAN	889	893	893	892	901	888	877	870	850	854	852	849	851	851	853	861	858	872	889	895	900	901	902	902	877					
M = MISSING DATA																														

M = MISSING DATA

*** SURFACE DATA				PALMYRA		LINE ISLANDS EXPERIMENT		HOURLY OBSERVATIONS										***							
STATION NO. 91385								APR 1967										1009 MBS							
								RELATIVE HUMIDITY (PERCENT IN TENTHS)																	
								LOCAL HOUR																	
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	940	941	909	697	918	880	875	939	955	964	880	948	841	830	826	819	827	852	901	860	897	849	849	877	886
2	931	961	935	943	991	915	848	874	774	837	832	840	804	808	804	871	537	893	909	913	909	922	969	961	874
3	951	903	875	895	894	865	857	847	821	784	820	853	969	904	856	864	684	882	837	837	770	828	786	777	858
4	823	836	877	914	914	872	880	801	753	763	762	764	764	738	746	757	822	781	817	794	809	823	847	659	813
5	862	843	965	967	837	867	895	849	807	797	779	747	747	722	726	741	811	811	843	912	879	925	875	868	834
6	852	840	844	848	888	833	802	865	879	845	818	836	867	829	819	804	805	797	818	822	922	834	837	829	835
7	829	829	813	841	829	841	869	849	801	794	825	804	811	785	779	832	814	813	905	881	872	873	837	833	832
8	869	845	849	868	991	987	947	551	543	510	858	926	924	903	938	916	896	901	896	884	901	856	821	885	908
9	864	885	884	892	868	926	921	964	884	861	823	827	805	1000	931	981	958	915	893	937	894	891	942	959	907
10	831	811	799	791	791	768	818	811	761	769	773	753	763	715	726	718	732	738	755	754	752	772	791	772	771
11	795	795	788	795	791	835	719	725	706	677	684	677	671	666	677	669	712	746	754	763	774	794	798	801	742
12	789	816	796	819	808	832	812	801	792	783	765	744	741	792	730	794	794	798	844	807	799	814	818	788	795
13	776	726	778	794	794	786	763	776	781	780	774	766	752	747	754	756	765	769	796	788	758	761	802	848	777
14	817	825	790	805	794	805	794	783	758	760	736	715	717	708	753	728	760	747	765	795	810	826	821	813	776
15	797	766	809	766	759	786	774	786	765	760	753	705	758	770	710	749	753	784	772	795	780	791	791	782	772
16	794	809	816	816	797	794	797	776	767	760	749	748	756	719	726	729	733	759	758	775	775	783	790	825	773
17	790	797	809	797	808	812	778	757	775	756	724	735	763	724	690	726	723	747	772	792	790	779	790	806	768
18	801	778	811	830	810	839	811	821	771	760	726	715	693	686	729	709	733	768	796	788	752	798	809	765	771
19	829	783	771	790	790	786	797	908	839	755	737	732	756	711	725	788	744	809	803	862	803	803	825	805	789
20	865	799	783	794	794	805	751	776	769	773	774	749	726	712	729	730	742	765	837	807	796	862	829	880	785
21	828	809	808	911	865	528	869	862	785	772	805	825	794	794	M	M	M	M	M	M	M	M	M	M	834
22	M	M	M	M	M	M	M	816	875	797	798	1000	898	835	823	839	811	819	831	838	825	M	M	M	844
23	M	M	M	M	M	M	M	837	811	795	774	793	787	802	791	763	755	904	838	857	837	M	M	M	815
24	M	M	M	M	M	M	M	842	831	915	903	823	830	802	825	809	828	793	763	817	771	M	M	M	826
25	M	M	M	M	M	M	M	810	796	798	777	800	785	796	782	M	748	M	816	M	791	M	803	M	792
26	M	M	M	M	M	M	M	907	913	833	858	888	831	M	749	737	741	M	770	M	M	M	M	M	823
27	M	M	M	M	M	M	M	837	811	794	809	978	839	M	872	M	764	M	819	M	788	M	M	M	831
MEAN	840	831	834	843	844	846	831	839	802	800	804	792	786	784	777	782	785	804	825	823	819	828	834	837	815

M = MISSING DATA

*** SURFACE DATA ***
 STATION NO. 91365 PALMYRA (ARMY SITE)

LINE ISLANDS EXPERIMENT

HOURLY OBSERVATIONS ***
 FEB 1967

DAY	WIND DIRECTION (DEGREES)																								MEAN DIRSPD
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
21	P	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
22	60	65	70	65	75	80	85	85	105	130	115	110	100	50	90	95	100	100	90	85	85	80	85	85	
23	80	90	85	85	85	80	85	85	90	90	95	80	80	80	80	80	85	65	70	70	65	65	65		
24	65	65	65	65	70	60	65	65	65	65	65	60	60	65	65	60	65	60	80	85	80	70	75		
25	60	65	65	60	60	60	60	60	55	55	65	65	65	60	120	125	100	95	90	96	105	95	85		
26	80	80	115	125	120	125	120	125	115	120	120	125	130	130	130	125	125	125	90	100	120	115	115		
27	120	115	115	110	110	110	105	110	110	100	105	100	90	90	100	90	90	90	90	85	85	85	85		
28	75	60	70	60	60	60	65	65	75	70	80	65	80	85	65	65	85	85	60	55	50	55	50		
MEAN																									
DIR	72	72	76	93	75	74	76	77	80	82	83	80	82	85	82	80	81	80	78	77	74	72	73		
SPD	98	91	93	145	91	55	98	100	95	97	55	95	97	101	95	94	91	92	50	93	100	97	55		

M = MISSING DATA

MEAN = MEAN VECTOR WIND IN W/CLE DEGREES AND MPH (IN TENTHS)

*** SURFACE DATA		LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS												***		
STATION NO. 91385		PALMYRA (ARMY SITE)										FEB 1967														
		SCALAR WIND SPEED (MPH IN TENTHS)																								
		LOCAL HOUR																								
DAY		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
21	M	127	118	127	127	126	132	111	117	94	91	73	75	74	79	83	70	61	61	83	88	96	91	59	89	96
22	M	127	118	127	127	126	132	111	117	94	91	73	75	74	79	83	70	61	61	83	88	96	91	59	89	96
23	M	127	118	127	127	126	132	111	117	94	91	73	75	74	79	83	70	61	61	83	88	96	91	59	89	96
24	M	127	118	127	127	126	132	111	117	94	91	73	75	74	79	83	70	61	61	83	88	96	91	59	89	96
25	M	127	118	127	127	126	132	111	117	94	91	73	75	74	79	83	70	61	61	83	88	96	91	59	89	96
26	M	127	118	127	127	126	132	111	117	94	91	73	75	74	79	83	70	61	61	83	88	96	91	59	89	96
27	M	127	118	127	127	126	132	111	117	94	91	73	75	74	79	83	70	61	61	83	88	96	91	59	89	96
28	M	127	118	127	127	126	132	111	117	94	91	73	75	74	79	83	70	61	61	83	88	96	91	59	89	96
MEAN		102	95	97	101	95	101	103	105	100	107	102	105	101	107	106	99	96	97	98	96	98	104	101	100	101

M = MISSING DATA
C = CALM WIND

M = MISSING DATA
C = CALM WIND

[illegible]

MEAN = MEAN VECTOR WIND IN WOLF DEGREES AND MPH (IN TENTHS).

= MISSING DATA

*** SURFACE DATA

LINE ISLANDS EXPERIMENT

PALMYRA (ARMY SITE)

STATION NO. 91365

HOURLY OBSERVATIONS

MAR 1967

SCALAR WIND SPEED (MPH IN TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	M	158	154	132	133	115	124	118	111	134	126	123	126	130	124	112	104	110	111	112	119	119	111	138	124
2	111	110	77	67	97	74	85	83	84	79	50	50	50	61	48	44	45	67	49	37	41	37	16	34	53
3	29	20	14	6	23	35	33	32	34	36	40	47	71	53	47	63	32	40	39	73	62	75	104	42	
4	104	85	47	110	109	83	75	103	119	101	54	58	67	53	54	63	83	90	87	86	89	81	98	95	
5	91	86	90	86	94	51	93	53	117	123	127	112	104	115	98	118	113	132	129	125	113	128	124	130	110
6	115	112	106	51	87	75	74	77	83	91	86	83	61	89	103	110	109	94	87	93	92	93	85	87	91
7	80	80	84	87	86	84	88	88	72	78	77	67	86	105	90	99	113	110	107	96	86	87	101	105	90
8	107	108	112	112	119	118	112	127	131	114	110	113	111	119	117	116	107	104	101	96	109	122	120	103	113
9	100	101	105	104	107	114	130	125	99	102	102	111	118	114	110	107	109	105	107	114	120	119	115	106	110
10	93	95	98	98	93	98	103	107	112	121	122	118	122	126	122	124	119	107	119	101	127	129	118	114	112
11	112	114	115	114	117	114	108	104	157	164	169	105	129	128	118	129	125	120	119	111	110	109	110	102	121
12	99	90	122	136	105	129	104	109	112	120	111	110	111	110	108	101	103	105	103	107	103	101	91	100	102
13	92	99	85	108	128	124	121	148	152	111	132	117	119	134	115	118	136	154	99	100	118	117	109	105	118
14	86	131	121	115	146	132	118	101	87	88	109	91	84	124	73	83	118	96	72	76	72	66	47	52	96
15	76	74	67	67	66	42	46	49	59	70	70	69	67	71	67	65	61	61	50	49	42	71	91	93	64
16	81	68	65	53	60	56	58	63	62	68	76	76	81	86	88	85	84	81	74	78	80	94	110	98	76
17	103	103	99	105	127	134	141	133	132	144	134	126	109	99	107	110	117	115	121	108	120	105	116	122	118
18	137	131	142	147	153	160	156	142	141	167	167	174	170	161	157	165	158	135	142	133	130	125	119	181	150
19	180	125	130	138	135	141	135	114	136	144	149	141	150	95	92	85	96	91	79	64	88	90	108	87	117
20	57	120	96	21	94	107	120	132	138	140	150	134	138	136	132	142	147	150	143	131	125	122	106	92	120
21	58	93	91	94	104	94	99	58	90	105	106	119	113	115	110	118	117	110	102	103	87	98	70	93	101
22	80	80	M	79	67	80	63	63	90	125	148	107	100	100	80	92	88	89	88	90	90	66	74	100	90
23	81	95	90	98	116	119	143	125	123	110	104	93	63	49	44	44	56	131	100	58	47	21	38	77	86
24	198	M	130	132	106	58	73	77	87	73	65	80	43	31	M	42	68	65	58	41	47	60	70	79	78
25	82	85	83	87	62	70	77	75	75	80	84	109	139	134	136	131	149	159	132	110	120	119	117	113	106
26	109	122	126	112	114	126	119	111	130	126	124	130	135	140	135	132	140	140	138	132	126	136	121	125	127
27	96	80	60	49	74	81	72	62	66	80	85	95	100	100	95	85	81	72	85	69	79	91	86	80	80
28	52	31	47	46	46	49	49	27	46	59	35	37	61	62	26	62	97	75	63	48	72	74	49	81	56
29	101	94	84	112	130	55	88	134	143	110	92	90	97	M	104	124	116	M	125	100	70	63	90	81	102
30	70	44	57	76	100	81	140	59	85	61	64	85	75	80	90	110	100	110	107	93	94	95	94	85	87
31	84	76	81	72	91	87	100	95	110	135	118	102	108	110	111	115	115	110	124	110	130	119	M	166	107
MEAN	98	94	95	93	99	97	98	98	102	105	103	95	95	102	97	95	106	104	99	91	94	94	93	101	98

M = MISSING DATA
C = CALM WIND

*** SURFACE DATA
STATION NO. 91385 PALMYRA (ARMY SITE)

HOURLY OBSERVATIONS
APR 1967

DAY	WIND DIRECTION (DEGREES)																								MEAN DIR SPD
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	75	60	70	75	95	85	75	75	115	125	120	130	125	115	100	95	90	90	85	75	85	75	70	75	98118
2	70	70	70	105	105	100	60	75	100	100	90	90	90	90	90	85	90	90	70	85	75	75	85	105	86 79
3	100	115	125	125	170	170	220	210	120	110	95	85	60	110	95	85	90	90	95	110	105	95	90	55	107 52
4	90	85	105	110	110	120	120	120	120	120	120	120	120	120	120	120	120	120	110	105	90	80	65	65	109 77
5	70	75	85	70	75	75	70	100	130	140	140	135	135	130	110	105	70	60	60	60	65	65	70	70	92 65
6	70	70	70	70	100	115	100	90	80	95	110	90	75	85	85	80	80	70	70	70	70	70	70	70	82 87
7	75	70	75	70	75	75	75	75	80	75	75	85	80	85	75	75	75	65	65	80	70	75	80	75	76 98
8	75	75	70	70	70	70	50	95	105	105	100	110	95	110	115	80	100	85	120	140	120	115	105	110	95 90
9	105	105	95	130	135	120	65	35	120	180	165	175	170	155	90	60	45	35	355	25	65	75	C	C	106 32
10	175	170	170	175	170	165	165	155	150	155	165	165	165	135	140	140	145	145	135	135	130	140	135	135	151 62
11	140	145	140	135	130	135	135	130	135	140	145	150	155	165	160	155	150	145	145	135	130	125	130	115	140 85
12	125	125	115	110	115	105	120	120	120	110	110	135	145	150	140	150	135	135	125	115	120	115	120	125	125 86
13	125	125	125	130	130	135	135	135	135	135	130	140	135	145	130	145	145	140	135	140	150	140	140	145	138101
14	150	150	155	155	150	150	150	150	150	145	145	145	135	140	140	135	135	130	130	135	140	135	130	135	144101
15	145	140	150	155	160	150	145	150	145	140	150	150	160	165	170	165	165	155	155	160	170	170	175	180	156 82
16	175	165	175	180	175	170	170	155	160	165	175	145	165	150	155	155	155	140	145	140	145	140	145	145	159 67
17	150	145	145	140	140	140	135	135	130	130	135	130	120	115	120	110	100	95	80	75	65	70	70	70	118 59
18	70	65	65	60	55	60	60	55	65	75	75	75	75	75	70	60	55	45	50	60	60	60	65	70	64 68
19	45	70	75	70	70	75	70	70	70	70	M	M	M	M	M	M	M	M	M	M	M	M	M	M	71 91
MEAN	105	105	109	110	116	116	112	108	120	123	124	126	125	125	117	111	109	103	104	105	104	100	102	105	113
DIR	65	64	62	62	71	64	60	69	84	86	83	80	78	85	79	72	72	68	64	66	62	65	62	60	69
SPD																									

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA
C = CALM WIND

SURFACE DATA

LINE ISLANDS EXPERIMENT

STATION NO. 91385 PALMYRA (ARMY SITE)

HOURLY OBSERVATIONS

APR 1967

DAY	SCALAR WIND SPEED (MPH IN TENTHS)																										
	01	02	03	04	05	06	07	08	09	10	11	LOCAL HOUR				14	15	16	17	18	19	20	21	22	23	24	MEAN
1	126	116	90	109	145	111	92	105	225	240	220	200	167	155	118	126	125	126	104	73	77	70	70	70	67	127	127
2	62	64	63	65	117	64	62	83	100	95	95	96	89	92	95	90	90	107	70	98	62	72	70	65	82	82	
3	64	64	46	34	74	44	58	18	35	73	71	59	65	50	50	55	58	68	83	84	81	84	76	83	62	62	
4	75	78	95	101	86	63	89	78	70	71	65	54	83	104	105	97	94	95	90	85	74	71	42	50	21	21	
5	58	65	80	66	60	61	43	58	67	71	69	108	106	95	82	68	76	72	72	81	80	91	84	82	76	76	
6	81	75	71	72	105	100	121	94	86	91	96	70	58	95	86	98	95	85	92	98	93	100	91	101	90	90	
7	115	100	96	93	92	85	89	92	110	105	79	115	120	111	94	91	90	80	82	95	100	109	134	101	99	99	
8	110	100	98	109	93	85	88	168	125	138	125	90	120	114	80	72	64	76	105	70	75	91	83	70	97	97	
9	54	48	38	44	38	20	31	61	36	52	72	75	90	116	127	97	83	67	31	28	34	20	C	C	53	53	
10	40	71	71	78	76	62	53	44	57	51	55	50	60	70	74	81	76	79	68	82	69	63	66	67	65	65	
11	73	81	84	85	96	105	98	100	112	113	98	82	83	84	90	87	85	75	70	80	71	69	76	83	87	87	
12	91	78	70	65	71	77	79	85	90	89	87	90	98	97	102	99	106	84	82	81	91	105	99	108	89	89	
13	117	111	108	109	112	102	106	102	113	106	111	109	97	104	92	91	97	93	87	97	103	100	102	98	103	103	
14	98	113	102	106	100	105	114	113	120	113	114	109	123	117	112	110	107	94	95	76	80	70	75	87	102	102	
15	99	92	84	103	109	86	87	94	57	86	75	72	72	68	68	65	97	90	100	101	88	67	61	51	84	84	
16	56	60	61	60	62	66	82	70	72	81	94	85	79	82	80	79	79	68	57	56	54	55	56	54	69	69	
17	70	59	63	62	60	59	69	63	73	85	88	83	83	77	83	69	66	57	45	57	48	56	52	50	66	66	
18	50	49	41	38	36	38	47	58	54	73	74	73	80	80	86	86	87	97	85	87	81	89	83	84	69	69	
19	80	80	88	92	104	99	98	94	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	92	92	
MEAN	80	79	76	79	85	76	79	83	92	95	95	90	93	95	90	87	88	84	79	79	76	76	74	72	83	83	

M = MISSING DATA
C = CALM WIND

*** SURFACE DATA
STATION NO. 91385 PALMYRA (CAUSEWAY)
LINE ISLANDS EXPERIMENT
HOURLY OBSERVATIONS
MAR 1967

DAY	WIND DIRECTION (DEGREES)																								LOCAL MCLR				MEAN			
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	DIR	SPD					
14	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45					
15	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
16	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
17	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
18	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
19	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
20	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
21	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
22	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
23	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
24	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
25	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
26	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
27	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
28	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
29	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
30	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
31	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	120	74	45						
MEAN	82	82	82	85	83	83	84	82	81	82	88	86	88	84	83	83	88	86	80	74	73	75	75	77	82							
DIR	128	124	122	119	130	128	131	123	134	134	133	124	122	118	103	114	125	121	123	120	125	121	122	137	124							

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

P = MISSING DATA

***	SURFACE DATA										LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	STATION NO. 913PS										PALMYRA (CALSENAY)										SCALAR WIND SPEED (MPH IN TENTHS)											MAR 1967																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	01 02 03 04 05					06 07 08 09 10					11 12 13 14 15					16 17 18 19 20					21 22 23 24					MEAN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
DAY	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M

M = MISSING DATA

*** SURFACE DATA PALMYRA (CAUSEWAY) ***
 STATION NO. 91385

LINE ISLANDS EXPERIMENT

HOURLY OBSERVATIONS

APR 1967

WIND DIRECTION (DEGREES)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	70	60	70	80	85	80	75	85	105	125	125	130	120	105	95	95	95	90	90	85	85	80	78	75	93162
2	75	75	75	75	115	115	65	75	95	90	85	85	85	85	90	85	90	90	75	85	80	85	90	100	85118
3	100	140	130	110	170	170	225	210	120	110	110	85	70	115	85	80	90	90	95	105	100	95	95	90	105 86
4	90	98	108	108	108	110	118	120	110	105	108	115	130	125	125	125	120	120	100	95	90	85	75	65	107 94
5	75	80	85	70	85	80	70	100	128	140	135	130	130	120	110	100	65	68	68	60	70	70	75	60	87103
6	75	70	70	75	100	105	95	90	90	100	100	90	70	80	85	90	75	70	75	75	70	75	75	75	81138
7	75	78	75	75	75	75	75	75	80	78	78	80	80	80	75	75	75	70	70	80	70	75	80	75	76164
8	75	75	70	75	70	70	55	95	90	95	105	110	108	100	98	90	105	125	125	110	100	100	95	95	90130
9	95	95	95	120	125	125	95	40	5	165	165	165	165	155	105	65	50	40	350	360	25	70	250	200	93 44
10	160	160	160	165	160	160	160	155	145	155	160	160	155	135	130	135	135	135	135	135	135	130	125	145 70	
11	135	135	130	120	125	130	130	125	130	135	135	140	140	160	160	155	145	150	135	135	130	115	125	115	134 98
12	120	125	110	100	100	105	105	105	105	105	105	110	130	135	140	140	135	130	120	110	115	115	115	115	117 96
13	110	110	115	120	120	125	130	125	135	135	140	130	145	140	135	135	140	135	130	135	135	135	135	135	129115
14	140	140	145	145	140	140	135	135	135	140	140	135	135	130	130	130	125	120	120	130	125	130	135	135	134111
15	135	130	135	135	140	140	135	135	140	135	135	135	145	150	155	155	155	155	150	150	155	160	165	170	144 88
16	165	160	155	165	165	160	160	150	140	150	150	155	155	155	155	150	145	140	140	135	135	135	135	135	145 74
17	135	140	130	135	130	130	120	120	115	120	125	125	115	110	105	100	90	85	80	80	80	70	75	75	106 80
18	80	70	75	70	70	65	60	55	65	75	75	70	70	70	65	60	55	50	50	55	60	60	60	70	64110
19	65	75	75	70	70	75	75	75	75	85	80	85	90	80	80	75	60	85	100	105	100	105	110	115	83149
20	125	130	130	120	130	130	125	120	130	125	120	120	120	115	110	105	105	95	90	90	85	90	85	95	113114
21	85	90	90	85	60	75	85	70	70	60	60	45	50	55	55	50	55	60	65	70	75	65	60	65	65 97
22	60	45	40	65	80	80	65	75	75	65	65	90	85	105	110	105	90	85	65	60	70	75	75	75	80135
23	75	75	75	80	85	85	90	90	85	80	65	75	70	80	85	80	75	75	75	65	70	60	65	70	76161
24	80	75	95	100	105	105	90	90	75	85	100	100	90	80	80	90	90	95	80	85	85	75	80	80	88178
25	70	75	75	80	85	95	95	95	90	90	85	75	80	85	85	85	80	85	75	70	75	80	75	80	82136
26	75	80	75	85	80	80	65	65	70	75	95	110	105	100	95	90	85	75	70	60	55	60	60	60	77124
27	60	55	60	60	60	60	60	60	50	55	65	70	70	65	75	60	65	70	85	75	75	100	95	90	68168
28	95	55	100	100	100	95	95	90	95	95	110	85	85	105	150	220	225	150	200	195	250	100	60	65	101 77
29	75	90	85	105	105	100	115	100	105	105	100	90	85	75	75	75	75	70	65	65	70	70	70	70	81 96
30	70	75	70	80	115	90	90	90	95	95	90	90	85	90	100	85	80	85	80	80	85	90	90	90	87130
MEAN	87	90	92	93	100	99	93	94	96	102	101	101	101	101	100	96	91	91	88	87	85	87	87	87	94
DIR	109	107	105	106	106	101	102	106	105	103	111	105	106	113	113	109	104	109	104	103	107	111	104	105	106

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA
C = CALM WIND

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***		
STATION NO. 91385			PALMYRA (CAUSEWAY)										APR 1967												
DAY	SCALAR WIND SPEED (MPH IN TENTHS)																								
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	205	195	179	194	193	173	179	197	256	267	246	213	183	157	141	162	155	152	130	118	103	120	132	120	173
2	119	129	129	121	145	82	151	163	128	114	127	119	113	122	126	121	112	146	126	135	102	106	99	72	121
3	80	87	50	72	66	43	43	16	57	86	83	78	71	65	67	74	80	88	105	91	99	103	98	100	75
4	96	101	106	110	102	96	108	96	84	79	76	68	100	116	117	106	109	88	94	99	97	107	99	98	99
5	108	108	106	125	117	100	80	77	81	79	107	114	110	104	89	75	122	122	138	143	154	173	146	154	114
6	147	156	139	141	136	118	133	116	118	110	108	80	107	140	119	135	139	155	169	176	184	186	172	198	141
7	181	177	179	173	158	162	160	158	162	176	154	189	179	160	142	152	148	146	150	137	178	186	200	174	165
8	187	200	201	190	173	137	132	219	149	141	140	M	139	161	105	107	75	103	119	98	77	114	103	68	137
9	70	67	52	71	61	35	43	63	39	49	61	62	77	116	184	182	132	97	46	34	33	73	28	12	70
10	36	82	79	73	86	73	66	54	64	63	61	53	50	78	79	81	81	88	73	87	90	74	73	88	72
11	92	93	109	112	119	117	122	105	124	123	158	93	89	89	96	94	94	90	86	89	82	89	40	102	100
12	109	97	93	75	74	89	84	99	106	94	98	97	106	95	106	107	115	100	90	95	101	112	110	112	99
13	126	132	130	128	138	129	112	127	122	124	120	117	105	118	101	99	101	101	108	112	115	113	119	111	117
14	111	106	125	118	117	113	121	125	M	121	129	112	119	120	120	120	124	123	103	91	98	90	83	94	112
15	104	111	95	105	117	102	98	102	106	95	88	82	79	75	67	75	84	98	109	112	83	72	62	44	90
16	46	61	76	54	59	69	83	89	94	89	101	96	89	85	77	80	84	78	67	64	64	63	72	65	75
17	65	71	74	78	76	69	87	83	79	93	98	90	99	88	92	82	87	82	93	92	102	106	110	105	88
18	102	100	97	74	79	83	87	88	95	116	124	101	115	120	119	122	116	117	125	130	131	135	150	152	112
19	157	157	160	170	190	180	180	171	159	170	170	170	160	160	149	143	137	114	125	128	124	131	142	135	153
20	121	147	150	151	146	130	131	126	99	105	100	108	109	122	103	103	91	108	103	132	133	124	115	94	119
21	95	79	84	55	66	51	77	73	57	73	117	128	112	100	M	M	116	137	141	140	152	122	110	118	100
22	111	94	73	96	142	124	162	124	132	113	212	153	179	183	208	175	156	152	138	133	127	140	137	163	143
23	147	162	154	155	105	160	170	168	155	157	161	169	147	175	182	178	180	158	161	165	171	161	164	186	163
24	216	217	196	180	208	214	185	151	183	166	148	182	201	217	220	182	179	172	177	170	174	148	138	118	181
25	100	118	117	123	107	137	112	126	142	137	163	134	163	163	165	157	166	160	125	140	130	149	139	137	138
26	140	113	106	135	138	115	126	109	109	114	140	85	131	129	145	145	128	131	126	132	143	145	168	157	129
27	143	148	165	166	178	190	166	158	144	147	170	198	167	190	196	193	193	208	179	184	177	185	128	147	172
28	142	139	146	134	130	120	119	120	118	107	133	100	81	114	62	32	33	70	33	19	8	35	61	56	88
29	88	93	65	41	40	56	77	82	67	63	69	107	110	129	151	140	130	134	144	125	144	116	104	113	100
30	126	122	122	101	131	125	127	127	137	106	130	141	138	123	122	135	123	160	147	139	161	144	137	133	132
MEAN	120	122	119	117	120	113	117	117	116	116	125	118	121	127	124	123	119	123	118	117	118	121	116	115	119

M = MISSING DATA

*** SURFACE DATA ***
 STATION NO. 91385 PALMYRA (BARREN ISLAND)
 LINE ISLANDS EXPERIMENT
 HOURLY OBSERVATIONS
 MAR 1967

DAY	WIND DIRECTION (DEGREES)																								MEAN DIRSPD	
	LOCAL HOUR																									
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
16	M	M	M	M	M	M	M	M	M	M	M	45	45	40	40	45	55	50	60	60	55	65	70	70	55137	
17	75	75	75	80	80	80	80	75	75	75	75	70	70	70	65	80	75	75	75	70	75	80	75	80	90	76169
18	95	95	95	90	90	85	90	80	90	90	90	90	100	100	95	90	85	85	85	80	75	70	70	70	87193	
19	60	60	75	75	80	80	90	75	85	100	100	50	55	90	85	90	100	95	90	35	40	50	10	15	76155	
20	5	85	65	35	35	35	35	35	45	40	35	35	30	30	30	30	30	35	35	40	40	40	45	45	39176	
21	40	40	40	40	40	40	45	45	45	35	25	25	20	20	20	25	25	30	30	30	40	45	45	45	36150	
22	60	60	60	60	60	60	55	60	70	90	120	130	125	125	110	120	105	125	105	100	95	95	90	90	81114	
23	60	90	85	90	80	85	90	50	50	50	50	90	85	85	50	65	105	125	85	65	35	60	60	65	84119	
24	50	105	105	105	100	100	95	90	80	75	75	90	140	150	215	30	35	35	50	35	45	45	25	20	77 96	
25	35	35	30	35	35	45	45	45	45	50	60	60	70	70	70	75	75	80	75	75	75	80	80	80	61152	
26	70	75	75	80	85	90	85	85	90	85	85	85	50	50	85	90	85	80	80	70	75	75	75	80	82169	
27	70	80	60	75	65	60	55	55	60	55	50	55	60	65	65	65	60	50	35	35	35	30	45	40	55132	
28	60	50	50	80	50	90	70	55	50	45	45	60	70	80	70	45	80	80	55	60	70	75	100	70	66 97	
29	75	50	45	65	70	60	70	75	70	75	75	90	85	65	80	85	85	75	70	60	70	75	75	70	71148	
30	65	55	60	65	75	65	90	50	75	70	65	60	50	50	50	45	55	60	60	50	50	50	50	50	60150	
31	50	50	50	45	50	50	50	50	45	40	55	50	50	45	45	40	45	40	45	35	40	35	50	55	46194	
MEAN	68	68	66	69	68	68	70	67	66	68	72	69	70	69	64	64	69	68	64	55	57	59	60	61	66	
DIR	143	143	139	136	147	149	151	152	157	156	145	134	134	131	123	133	142	138	142	138	139	141	137	156	141	

MEAN = MEAN VECTOR WIND IN WPOLE DEGREES AND MPH (IN TENTHS).
 M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***					
STATION NC. 91385			PALMYRA (BARREN ISLAND)										MAR 1967															
			SCALAR WIND SPEED (MPH IN TENTHS)																									
DAY			LOCAL HOUR																									
	N	M	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
16	149	160	164	175	192	201	194	200	195	194	171	155	147	153	142	129	144	160	157	175	162	158	140	155	151	156	144	140
17	171	187	188	112	200	210	200	200	200	211	209	220	203	219	220	188	202	198	190	188	182	185	180	185	185	185	185	185
18	240	201	194	200	190	185	185	185	185	191	197	189	188	190	149	158	143	130	125	119	101	141	179	128	90	128	90	
19	65	178	170	96	146	164	194	194	194	202	228	214	182	196	178	179	191	199	212	214	210	190	188	183	169	181	181	
20	170	155	150	152	164	163	170	170	170	144	153	160	149	140	145	140	139	141	151	149	148	152	151	180	139	140	152	
21	140	150	130	145	136	159	121	149	130	173	157	125	128	123	105	88	99	99	100	111	118	120	109	99	141	127	127	
22	123	126	120	116	155	142	178	144	144	144	145	142	123	110	80	63	81	154	152	146	114	67	33	70	190	124	124	
23	280	200	170	170	140	120	98	97	135	110	120	92	48	27	23	67	93	98	100	84	106	114	118	119	114	114	114	
24	133	142	135	131	132	134	130	130	130	136	146	182	187	182	197	181	183	192	187	170	155	155	170	167	168	159	159	
25	176	181	161	157	160	160	151	151	151	188	169	173	159	165	172	168	177	170	170	188	175	161	180	189	172	190	171	
26	138	138	119	146	147	148	143	138	131	150	145	152	154	141	133	120	125	120	125	130	111	114	135	135	123	134	135	
27	101	86	92	99	74	85	62	115	105	107	55	74	118	124	77	110	145	114	95	119	107	101	101	91	148	100	100	
28	139	131	150	200	170	165	205	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	200	
29	102	92	120	130	130	150	130	201	144	135	137	124	167	123	169	170	190	170	170	172	179	179	181	180	181	169	154	
30	159	160	160	152	183	175	192	192	198	185	224	193	193	193	193	210	187	193	193	194	197	185	204	210	249	293	195	
31	152	152	149	145	156	157	162	162	160	165	165	165	157	148	150	147	138	148	156	154	152	146	146	149	147	165	153	
MEAN																												
M = MISSING DATA																												

M = MISSING DATA

*** SURFACE DATA ***
 STATION NO. 91385 PALMYRA (BARREN ISLAND)
 LINE ISLANDS EXPERIMENT
 HOURLY OBSERVATIONS
 APR 1937

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	70	60	95	100	105	105	95	95	90	95	85	70	55	60	60	75	75	70	65	65	65	60	55	55	60177
2	60	50	55	75	105	65	50	60	60	70	65	65	70	65	70	70	75	60	60	60	70	70	80	85	67127
3	55	115	90	110	150	185	225	150	100	100	70	75	100	85	70	75	75	85	85	80	75	80	80	80	92776
4	75	80	90	90	90	95	100	100	85	90	90	110	115	110	105	100	100	100	90	85	80	70	60	65	89104
5	70	65	60	60	60	65	70	95	110	120	115	120	110	100	90	65	45	50	40	50	55	50	60	60	70111
6	50	55	50	65	95	90	75	75	90	95	85	70	55	60	60	60	60	55	60	50	50	50	50	50	63144
7	60	50	45	50	50	55	60	60	65	65	60	60	60	60	55	50	50	55	55	50	50	60	65	55	56173
8	55	55	50	50	45	50	55	80	75	75	80	85	75	90	90	70	85	75	100	110	100	90	80	85	73144
9	75	80	80	110	125	95	60	120	110	140	150	160	145	125	50	25	20	25	300	225	35	155	210	140	9249
10	140	140	150	145	145	150	147	140	135	135	135	145	125	110	115	110	120	120	110	110	115	110	110	110	12780
11	110	110	105	105	105	110	110	105	115	120	120	120	130	135	135	125	130	130	120	110	105	105	95	95	114110
12	105	100	90	85	90	85	90	90	90	100	105	120	130	130	130	135	125	125	110	110	110	105	110	110	108106
13	110	110	115	115	120	115	120	120	125	125	120	120	130	135	130	135	125	125	130	130	125	130	130	130	123129
14	135	135	140	140	140	135	135	130	135	135	130	130	125	125	130	125	120	115	115	120	120	125	135	135	130121
15	137	130	130	135	135	135	130	130	120	125	130	135	130	140	155	140	145	145	140	150	150	160	170	170	138100
16	170	160	150	155	160	160	150	145	125	140	140	145	145	140	145	135	135	135	140	130	130	125	125	130	14281
17	130	120	120	120	120	115	110	120	115	115	115	110	100	100	100	90	90	75	75	75	70	65	65	70	9987
18	70	60	65	60	55	60	50	50	60	65	65	60	55	60	50	45	45	40	45	45	45	45	50	60	54116
19	60	65	65	60	65	65	70	65	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	69172
MEAN	85	84	87	91	98	95	91	95	95	101	99	101	99	100	93	87	87	83	83	87	81	81	83	83	90
DIR	110	106	111	113	104	101	100	109	106	108	100	93	99	101	91	91	96	97	96	98	102	102	98	100	101

MEAN = MEAN, VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA

HOURLY OBSERVATIONS

LINE ISLANDS EXPERIMENT

SURFACE DATA

APR 1967

PALMYRA (BARREN ISLAND)

STATION NO. 91385

SCALAR WIND SPEED (MPH IN TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	213	225	290	285	245	225	195	P	M	P	M	M	M	P	M	178	170	162	144	124	117	135	133	130	186
2	126	136	142	149	145	120	168	180	117	127	130	112	122	129	131	125	153	145	146	128	110	113	87	88	131
3	104	82	74	98	69	50	40	45	85	82	84	73	58	71	75	71	85	111	109	116	114	119	115	85	65
4	109	122	126	117	112	117	114	102	88	84	70	77	109	124	118	114	120	116	117	108	112	103	107	110	108
5	111	109	130	121	114	101	94	58	94	92	117	119	111	99	81	103	136	135	150	160	180	169	156	161	123
6	159	155	154	156	139	156	143	145	99	134	115	83	138	130	116	M	140	154	170	189	187	192	188	196	149
7	214	182	186	165	173	164	163	172	175	192	167	178	170	172	146	159	159	152	169	149	182	197	203	190	174
8	205	156	200	195	171	150	163	245	172	168	153	149	190	150	113	107	86	124	125	113	122	123	113	95	151
9	82	70	67	88	54	56	60	78	58	86	85	93	107	165	200	165	115	85	52	35	48	50	27	31	82
10	59	92	90	97	98	80	72	69	74	64	59	52	72	77	78	86	90	98	92	105	94	75	92	94	83
11	110	120	128	130	127	143	123	137	142	134	110	91	95	91	108	99	98	94	95	102	97	104	102	116	112
12	109	112	96	90	97	99	106	116	115	112	106	100	104	105	115	110	120	101	104	124	115	131	126	142	111
13	157	144	148	145	146	138	133	143	144	134	122	130	111	112	107	101	114	120	125	130	129	136	131	119	130
14	114	122	128	131	109	127	135	140	145	140	136	121	126	127	130	125	133	128	114	105	107	102	96	107	123
15	120	123	105	122	132	112	120	121	119	108	91	84	76	75	70	83	92	107	118	122	102	86	81	70	102
16	63	72	75	67	73	79	103	105	102	100	107	96	94	90	70	80	84	77	77	71	79	71	76	77	83
17	83	83	82	90	82	85	92	90	91	99	108	98	100	91	105	81	89	87	92	104	103	112	109	108	94
18	103	103	91	83	83	89	91	94	113	123	117	101	113	127	125	125	120	131	132	147	140	156	156	166	118
19	161	162	159	179	189	189	183	172	176	190	162	178	169	151	M	M	M	M	M	M	M	M	M	M	174
MEAN	129	127	131	132	124	12	121	125	117	121	114	108	116	115	111	113	117	118	119	118	120	121	117	118	120

M = MISSING DATA

*** SURFACE DATA ***

LINE ISLANDS EXPERIMENT

HOURLY OBSERVATIONS

STATION NO. 91487 FANNING (ARMY SITE -- PRI)

MAR 1967

DAY	RAINFALL (MM & TENTHS)																								
	LOCAL HOUR																								
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	C	0	0	0	13	0	0	0	0	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	41
3	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
4	3	5	30	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	44
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	10	8	0	0	27
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0	0	0	0	0	16
10	0	10	0	0	0	8	20	5	0	0	0	0	0	0	3	0	3	3	0	0	3	0	3	0	58
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	C	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	8	0	0	0	0	0	29
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
15	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
17	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70
19	0	0	25	0	0	3	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	13
20	0	10	0	0	89	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	102
21	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
22	C	5	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
23	C	0	0	0	0	46	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	67
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	28	145	0	41	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	224
26	20	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
31	0	0	0	0	8	0	0	10	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	3	29
TOTAL	28	36	73	95	266	77	82	41	8	0	0	31	30	13	3	8	26	42	11	11	21	19	44	24	989

M = MISSING DATA
T = TRACE

*** SURFACE DATA ***

LINE ISLANDS EXPERIMENT

STATION NO. 91487

PANNING (ARMY SITE - PRI)

APR 1967

HOURLY OBSERVATIONS

DAY	RAINFALL (MM & TENTHS)										LOCAL HOUR										TOTAL			
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20		21	22	23
1	79	94	79	130	33	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	421
2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	3	0	0	0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
19	0	0	0	0	0	0	0	0	0	20	0	25	0	0	0	0	0	0	0	0	0	0	0	45
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
TOTAL	79	102	82	133	33	46	3	0	3	20	0	28	0	3	0	0	0	0	0	0	0	0	0	532

M = MISSING DATA
T = TRACE

*** SURFACE DATA

LINE ISLANDS EXPERIMENT

HOURLY OBSERVATIONS ***

FEB 1967

FANNING

STATION NO. 91487

DAY	TOTAL CLOUD COVER (TENTHS)																								
	LOCAL HOUR																								
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
27	M	M	M	M	M	M	M	M	3	2	1	2	1	1	2	3	6	M	M	M	M	M	M	M	2
28	M	M	M	M	M	M	0	10	9	2	1	5	7	5	6	8	9	M	M	M	M	M	M	M	6
MEAN	0	0	0	0	0	0	0	10	6	2	1	4	4	3	4	6	8	0	0	0	0	0	0	0	4

M = MISSING DATA

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS ***												MAR 1967	
STATION NO. 91487			FANNING																									
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN			
1	M	M	M	M	M	M	9	9	9	8	5	7	10	9	10	10	9	10	10	5	6	9	10	10	9			
2	B	4	10	10	8	8	9	9	9	9	10	10	10	10	10	10	9	8	8	3	2	1	10	10	8			
3	C	0	0	0	0	0	0	0	0	3	5	5	6	4	3	4	4	2	7	2	2	4	10	10	3			
4	M	M	M	M	10	10	8	9	8	8	2	1	2	3	4	3	4	4	2	8	1	1	M	M	5			
5	M	0	0	0	0	0	1	0	1	1	3	3	2	8	6	7	8	8	7	8	M	M	M	0	3			
6	C	0	0	0	0	0	10	10	6	1	3	4	6	2	9	4	4	4	2	6	6	1	2	2	4			
7	0	0	0	0	1	1	4	6	2	2	2	2	1	1	1	1	6	5	6	6	2	1	0	0	2			
8	C	3	7	5	0	0	1	1	1	1	1	1	2	2	6	3	8	2	10	4	2	5	0	0	3			
9	0	0	4	3	0	1	1	1	1	1	6	3	4	3	9	9	10	8	8	10	10	10	8	8	5			
10	2	10	8	4	7	10	6	10	9	9	7	10	10	9	10	10	10	10	10	10	10	10	10	8	4			
11	10	6	7	4	8	10	10	9	9	7	9	8	9	10	10	10	10	10	10	10	8	7	0	3	8			
12	10	0	4	7	5	10	10	4	6	2	5	3	7	6	5	3	2	10	10	1	3	1	7	2	4			
13	5	5	4	3	2	4	9	9	7	3	2	6	6	6	8	8	8	6	6	2	1	1	0	0	5			
14	0	0	10	9	8	10	9	3	4	4	4	4	3	2	4	3	3	3	9	8	2	2	1	1	5			
15	1	1	3	8	5	5	4	4	4	4	4	3	2	4	4	3	3	3	9	8	4	2	0	0	4			
16	0	0	0	0	0	3	6	2	7	7	3	4	3	8	7	7	8	5	5	2	2	4	1	0	4			
17	0	1	1	10	10	10	0	0	1	4	6	5	5	4	8	8	7	6	6	3	4	5	1	1	3			
18	5	10	10	10	10	10	9	9	4	8	9	9	9	6	6	6	6	6	7	9	7	8	7	8	8			
19	4	4	7	7	7	7	4	6	8	8	9	7	6	7	7	7	3	3	4	2	0	0	1	4	5			
20	3	1	1	7	10	10	9	10	10	9	8	10	10	10	10	10	9	10	10	10	10	8	9	9	8			
21	9	6	1	1	6	9	9	8	3	6	6	7	7	7	9	5	9	9	9	2	4	7	9	5	6			
22	5	10	10	10	7	8	7	8	8	2	4	7	4	8	9	9	8	5	9	10	3	5	2	3	7			
23	7	10	5	4	8	10	10	10	10	10	9	9	7	7	10	10	9	10	5	4	10	4	1	0	8			
24	0	0	2	7	8	10	10	8	3	2	4	3	5	7	6	8	5	5	4	4	4	2	5	4	5			
25	3	5	8	10	9	9	10	10	7	7	7	8	6	8	2	2	6	6	10	3	6	4	4	9	7			
26	10	10	M	M	M	6	6	4	7	7	7	6	6	8	7	5	6	2	2	1	5	8	9	10	6			
27	10	10	10	10	7	4	8	7	6	8	7	3	5	6	6	4	5	5	5	1	8	10	7	2	6			
28	10	10	10	10	9	9	9	6	7	7	8	8	10	9	10	10	10	10	10	10	10	10	10	10	9			
29	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9			
30	8	8	10	10	9	9	8	9	10	10	10	10	10	10	8	10	10	10	10	10	10	10	10	4	9			
MEAN	4	5	5	5	5	6	7	6	6	6	6	6	6	7	7	7	7	6	7	6	5	5	5	4	6			

M = MISSING DATA

HOURLY OBSERVATIONS
APR 1967

LINE ISLANDS EXPERIMENT

*** SURFACE DATA
STATION NO. 01487 FANNING

DAY	TOTAL CLOUD COVER (TENTHS)																LOCAL HOUR								MEAN							
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24								
1	0	10	10	10	10	10	10	10	10	10	10	10	10	10	10	9	9	10	10	8	3	3	2	1	8							
2	3	10	10	6	4	3	6	1	3	5	2	4	8	10	10	7	5	5	5	3	2	2	2	1	5							
3	C	0	2	4	3	6	9	1	4	5	8	10	5	10	10	5	5	6	8	8	7	5	5	3	5							
4	6	1	2	2	3	2	7	2	2	8	8	8	4	4	6	8	8	7	8	4	4	3	2	3	5							
5	0	1	2	1	1	5	2	2	6	5	4	4	7	7	7	7	6	7	7	4	2	2	2	1	4							
6	2	1	2	1	1	4	7	2	7	7	3	6	6	6	4	8	8	7	7	7	6	4	4	1	5							
7	2	2	3	4	8	6	4	3	8	8	10	9	10	10	10	10	10	10	10	10	10	10	10	8								
8	10	6	4	5	4	6	2	3	10	10	10	10	10	10	8	8	9	9	9	9	6	7	7	10	9							
9	10	6	7	9	8	10	8	6	8	8	8	8	8	4	3	3	2	2	1	0	0	0	3	2	5							
10	6	7	9	8	10	9	8	6	8	8	8	8	8	4	3	3	2	2	1	0	0	0	3	2	5							
11	0	1	1	1	1	6	8	9	6	10	10	7	7	8	8	8	8	8	8	5	5	5	2	1	6							
12	C	1	1	2	2	8	8	8	5	4	5	5	7	3	3	3	3	3	3	0	3	2	2	1	3							
13	1	2	2	2	7	8	9	7	7	3	3	7	0	2	2	3	3	3	3	3	3	3	0	1	3							
14	1	1	2	1	0	1	7	5	4	3	8	7	9	10	8	7	5	6	5	4	7	5	4	2	5							
15	0	1	1	0	4	5	3	8	10	10	10	10	10	9	9	5	5	4	3	7	4	2	2	2	5							
16	2	5	4	1	5	7	7	7	7	8	10	10	7	5	4	5	5	5	4	4	4	4	4	4	5							
17	3	3	1	1	1	2	3	6	7	7	7	8	8	5	5	5	7	7	5	5	3	3	3	5	5							
18	9	9	3	1	9	9	9	10	10	10	10	8	8	8	10	8	8	8	8	8	9	9	9	7	8							
19	7	7	7	3	2	2	4	7	10	8	10	10	9	8	8	8	8	6	5	9	7	4	5	3	7							
20	7	7	7	3	3	3	2	2	3	3	6	6	6	7	4	4	4	4	3	3	3	3	2	3	4							
21	1	1	3	4	7	9	9	9	4	4	4	5	5	7	M	M	M	M	M	M	M	M	M	M	5							
MEAN	3	4	4	3	5	6	6	6	7	7	7	7	7	7	7	6	6	6	6	5	5	4	4	3	5							

M = MISSING DATA

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***				
STATION NO. 41487			FANNING										FEB 1967														
			STATION PRESSURE (MBS IN TENTHS, 1000+)																								
DAY			LOCAL HOUR																								
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
27	M	M	M	M	M	M	M	M	M	110	110	110	102	91	83	81	74	74	M	M	M	M	M	M	M	M	93
28	M	M	M	M	M	M	M	M	M	104	102	107	105	97	86	78	71	65	65	M	M	M	M	M	M	M	89
MEAN	0	0	0	0	0	0	0	0	0	104	106	109	108	100	90	81	76	70	70	0	0	0	0	0	0	0	90
M = MISSING DATA																											

M = MISSING DATA

*** SURFACE DATA		HOURLY OBSERVATIONS																								***	
STATION NO. 91477		LINE ISLANDS EXPERIMENT																								MAR 1967	
DAY		STATION PRESSURE (HRS IN TENTHS, 100ths)																									
		LOCAL HOUR																									
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
1	M	90	90	90	75	75	75	72	74	95	100	95	90	81	71	65	64	65	64	65	64	86	91	95	95	83	
2	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
3	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
4	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
5	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
6	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
7	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
8	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
9	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
10	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
11	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
12	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
13	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
14	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
15	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
16	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
17	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
18	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
19	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
20	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
21	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
22	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
23	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
24	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
25	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
26	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
27	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
28	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
29	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
30	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
31	M	85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	
MEAN		85	85	81	80	77	67	75	81	97	104	100	86	65	64	61	63	61	64	72	75	94	87	94	94	80	

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***				
STATION NO. 91487			FANNING										APR 1947														
DAY			STATION PRESSURE (MBS IN TENTHS, 1000+)										LOCAL HOUR										MEAN				
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	M		72	68	70	75	82	84	92	100	100	95	85	75	60	50	40	39	42	50	57	61	70	75	81	71	
2			76	68	64	61	63	65	71	74	81	35	84	79	72	62	52	50	50	60	67	72	85	90	94	95	
3			64	74	68	67	64	66	70	74	87	92	90	80	69	65	56	50	50	55	65	73	74	78	83	81	
4			75	65	60	58	65	70	72	80	82	85	84	79	67	60	51	49	49	53	60	64	67	70	76	67	
5			65	55	54	50	56	60	66	69	74	77	75	72	64	56	44	42	40	45	50	60	60	75	90	81	
6			75	70	68	65	73	78	83	88	91	91	86	81	70	60	53	50	50	55	60	65	78	84	90	85	
7			79	75	70	69	71	75	79	85	85	90	88	84	73	61	54	55	55	60	66	70	75	78	74	72	
8			70	63	54	55	57	64	69	71	83	85	82	76	65	56	46	45	46	50	55	60	64	70	73	68	
9			67	62	57	52	63	64	63	73	83	83	85	81	79	76	70	65	60	65	70	75	84	98	100	91	
10			86	81	74	73	72	75	80	87	95	100	97	93	89	79	70	67	65	68	80	85	90	93	99	83	
11			91	86	78	76	79	86	96	104	105	101	97	89	82	77	77	77	74	80	86	90	97	90	101	99	
12			98	91	85	83	82	88	90	95	104	108	107	102	92	87	79	74	66	75	72	84	90	93	95	95	
13			91	86	80	81	83	87	91	97	105	105	101	97	86	79	72	70	73	75	80	90	95	100	105	107	
14			103	98	92	91	95	97	101	103	110	117	112	106	99	89	84	84	84	95	92	100	105	113	115	123	
15			114	110	106	103	106	110	114	122	120	129	125	122	114	103	96	91	91	100	105	115	117	120	120	118	
16			114	111	109	107	111	119	122	128	135	129	126	123	110	105	98	98	100	105	115	123	127	130	132	128	
17			123	119	113	111	113	118	121	126	136	132	129	119	110	101	95	95	95	100	110	117	120	125	130	126	
18			120	117	114	110	117	125	129	135	137	135	134	129	120	107	100	100	100	105	116	126	130	132	132	128	
19			118	115	113	112	115	119	123	131	132	135	133	129	117	110	102	100	100	105	110	120	125	129	129	125	
20			121	117	114	112	116	120	124	130	136	136	134	129	117	109	101	98	100	104	110	115	125	130	130	126	
21			119	110	106	104	105	110	112	117	126	127	122	117	110	101	98	98	100	104	110	115	125	130	130	126	
MEAN			94	88	83	82	85	89	93	95	106	107	104	99	89	80	73	70	70	74	81	88	94	98	102	100	
M = MISSING DATA																											

M = MISSING DATA

D. 91487

1000

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M = MISSING DATA

STATION NO. 91487
SURFACE DATA
LINE ISLANDS EXPERIMENT
MAR 1967
HOURLY OBSERVATIONS
1009 HRS

DAY	TOY BULL TEMPERATURE (FAHR IN TENTHS)												LOCAL HOUR												MEAN				
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24	24	24	24	
1	M	M	M	M	M	M	775	766	764	806	828	828	733	783	790	763	776	780	793	785	778	786	770	786	786	786	786	786	786
2	760	790	782	780	781	781	770	781	803	799	802	784	774	800	802	742	795	793	781	790	785	787	786	786	786	786	786	786	786
3	790	790	798	798	794	794	793	799	816	808	828	828	814	829	848	834	837	830	813	810	808	818	812	802	810	810	810	810	
4	M	M	M	M	M	M	796	800	821	811	818	822	837	831	821	843	820	826	810	808	809	800	802	M	M	M	M	M	
5	M	801	786	787	798	797	812	822	826	826	835	846	845	845	839	826	820	821	810	811	M	M	M	M	M	M	M	M	
6	M	M	M	M	M	M	796	769	810	830	832	831	827	838	810	822	816	820	810	800	812	811	802	804	810	810	810	810	
7	800	799	796	794	797	799	802	812	822	828	824	824	840	860	840	826	822	823	812	810	815	814	798	803	810	810	810	810	
8	803	796	794	795	793	802	801	824	824	834	855	861	868	875	855	805	805	805	805	811	810	811	808	806	820	810	810	810	
9	803	796	794	795	798	797	802	814	830	832	853	863	863	860	856	830	822	810	799	798	794	785	793	787	794	794	794	794	
10	795	775	776	782	793	782	781	773	775	804	804	798	824	812	820	795	800	798	792	785	792	785	793	797	794	794	794	794	
11	798	796	796	794	792	793	793	804	825	822	834	823	820	830	832	815	825	812	805	805	798	800	798	799	808	808	808	808	
12	790	794	794	776	778	771	791	808	820	820	830	830	840	840	840	842	825	823	820	818	820	800	806	798	809	809	809	809	
13	799	794	822	775	793	791	791	795	795	816	819	835	854	845	835	830	820	810	802	810	800	800	801	800	800	800	800	800	
14	797	794	795	799	799	799	797	794	812	816	819	835	854	845	835	830	820	812	802	800	802	803	801	800	800	800	800	800	
15	796	794	791	774	793	789	799	795	814	823	835	822	844	845	835	830	820	810	795	800	800	810	802	802	809	809	809	809	
16	798	797	794	794	791	794	794	812	820	822	840	846	844	854	850	842	825	820	815	812	811	798	803	805	815	815	815	815	
17	802	801	802	800	800	798	798	809	819	827	839	847	831	840	840	830	820	815	812	810	806	804	803	815	815	815	815	815	
18	801	777	774	777	778	750	793	799	804	820	834	830	821	835	821	820	820	800	780	790	795	800	800	804	804	804	804	804	
19	802	791	794	794	794	793	790	793	821	813	826	835	811	830	831	815	809	806	801	798	798	798	795	799	805	805	805	805	
20	806	796	796	796	795	780	795	782	790	792	828	836	821	813	810	823	797	794	776	774	772	780	784	810	797	797	797	797	
21	775	777	788	785	798	775	792	811	816	820	825	840	841	832	822	819	813	803	799	800	799	803	797	800	805	805	805	805	
22	801	792	754	771	791	784	795	785	810	814	821	834	835	820	810	810	810	805	803	804	801	799	803	802	802	802	802	802	
23	802	802	802	802	799	798	778	778	795	795	810	820	811	821	834	823	811	810	809	804	803	800	797	803	803	803	803	803	
24	794	791	791	790	792	790	794	800	810	821	821	830	841	841	842	821	822	802	801	800	800	801	793	812	808	808	808	808	
25	813	813	810	800	791	800	782	796	822	826	821	825	831	841	839	826	820	813	810	807	803	809	806	804	812	812	812	812	
26	805	793	M	M	796	800	810	812	815	820	827	831	760	839	830	820	817	809	810	806	807	804	808	813	813	813	813	813	
27	810	805	802	804	802	800	800	800	820	820	820	838	851	850	846	822	816	812	810	804	808	806	790	813	813	813	813	813	
28	800	802	800	799	799	800	800	810	810	810	820	830	830	830	830	813	812	812	809	810	809	809	808	811	811	811	811	811	
29	802	806	806	805	806	808	806	802	814	826	831	835	837	836	820	820	820	821	814	810	816	810	810	806	815	815	815	815	
30	805	802	805	812	799	802	799	802	810	821	829	830	834	834	833	821	818	813	810	812	811	802	804	803	812	812	812	812	
31	801	804	802	806	800	790	793	764	766	820	822	831	835	825	825	823	818	810	798	805	796	795	799	800	808	808	808	808	
MEAN	799	795	794	792	792	791	791	792	810	817	825	829	832	834	834	821	815	810	803	803	800	802	799	800	800	800	800	800	800

* = MISSING DATA

*** SURFACE DATA ***

STATION NO. 91487		FAHRING										MAR 1967										1009 MRS				
		SEA POINT TEMPERATURE										LEAHU TV TENTHMS														
		LOCAL HOUR																								
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
2	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
3	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
4	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
5	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
6	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
7	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
8	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
9	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
10	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
11	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
12	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
13	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
14	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
15	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
16	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
17	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
18	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
19	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
20	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
21	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
22	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
23	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
24	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
25	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
26	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
27	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
28	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
29	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
30	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
31	M	748	748	740	738	731	735	744	745	745	753	753	754	738	742	753	751	752	750	740	753	750	749	749	752	750
MEAN		755	756	755	752	751	753	752	757	759	765	768	767	769	771	774	765	761	759	757	757	756	755	755	753	759

M = MISSING DATA

STATION NO. 9147			SURVEIL DATE			LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS														1009 MGS		

LINE ISLANDS EXPERIMENT

HOURLY OBSERVATIONS

APR 1967

STATION NO. 51487

FANNING

1000 WRS

TEMP POINT TEMPERATURE (FAHR IN TENTHS)

DAY	LOCAL HOUR												MEAN												
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	752	752	727	732	732	727	705	734	738	738	744	758	764	766	756	742	741	744	751	749	746	751	744	747	743
2	752	753	750	747	749	748	749	743	748	748	745	754	754	760	757	761	750	746	745	742	754	757	749	744	750
3	740	741	743	740	754	755	749	740	735	737	736	744	745	739	738	731	740	742	740	743	740	742	759	749	743
4	744	744	750	753	750	753	744	741	749	757	761	752	762	751	764	742	758	752	749	740	754	769	771	757	752
5	743	744	745	751	758	748	757	750	747	753	750	742	754	758	773	775	767	763	765	767	761	753	748	754	757
6	758	757	761	758	757	754	756	755	762	765	763	767	776	771	766	771	773	771	767	765	762	762	767	764	764
7	765	762	767	764	767	761	758	765	761	757	762	763	763	764	770	772	769	765	762	769	769	767	771	768	765
8	757	758	762	762	765	751	750	763	753	752	764	755	764	756	768	764	772	765	765	759	773	772	766	762	760
9	744	754	752	766	758	752	744	749	744	755	735	744	750	735	749	758	758	747	750	752	732	744	744	721	747
10	712	711	722	731	732	734	728	728	728	730	740	740	743	739	738	749	748	747	745	740	737	729	711	720	733
11	721	725	720	709	721	721	731	726	747	750	751	755	752	759	749	753	750	754	763	754	754	759	766	761	744
12	753	754	751	746	745	750	754	749	754	754	754	758	763	760	758	764	761	765	760	745	749	739	739	757	753
13	754	743	747	745	746	752	754	758	740	762	771	761	761	760	767	763	764	761	765	765	747	752	752	751	757
14	754	752	747	744	758	745	749	751	753	754	743	758	760	754	759	764	761	764	758	759	758	755	742	747	756
15	755	752	750	750	750	754	743	748	755	761	755	752	755	754	761	757	767	750	750	750	742	743	743	742	751
16	747	751	751	744	743	746	746	749	761	742	751	758	757	759	755	768	755	755	754	754	754	750	751	745	752
17	748	753	741	744	743	743	746	749	749	754	765	765	760	758	758	754	755	763	750	754	742	743	741	759	751
18	748	750	757	754	740	754	757	744	764	766	772	755	740	755	767	769	773	761	765	760	761	739	757	762	760
19	768	746	752	743	744	755	753	751	748	768	767	765	749	759	763	765	764	751	752	754	750	740	741	747	754
20	751	752	750	752	744	748	748	748	744	757	759	754	767	748	743	750	767	753	759	754	754	758	757	757	753
21	745	754	745	749	744	743	748	752	760	759	760	755	732	739	M	M	M	M	M	M	M	M	M	M	750
MEAN	750	740	747	747	748	747	746	747	751	754	754	755	757	755	756	759	758	756	755	754	752	753	752	751	742

M = MISSING DATA

*** SURFACE DATA		LIFE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS ***											
STATION NO. 51487		FANNING												FEB 1967 1009 WRS											
		SPECIFIC HUMIDITY (G/KG IN TENTHS)																							
DAY		LOCAL HOUR																							
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
27	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	MEAN
28	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	189
MEAN	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	196

M = MISSING DATA

*** SURFACE DATA FANNING

STATION NO. 91487

LINE ISLANDS EXPERIMENT

HOURLY OBSERVATIONS

1009 MBS

APR 1967

DAY	SPECIFIC HUMIDITY (G/KG IN TENTHS)																							
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	187	186	171	174	174	171	159	175	178	178	181	190	194	196	189	180	179	182	186	184	182	186	182	183
2	186	187	185	183	184	184	184	184	184	184	184	184	184	184	184	184	184	184	184	184	184	184	184	184
3	179	180	180	179	187	188	185	179	176	177	177	181	183	179	178	178	174	175	180	181	179	180	180	185
4	184	192	185	187	185	187	181	180	185	190	193	186	193	186	183	181	190	186	182	179	188	197	195	187
5	181	183	182	186	190	184	189	185	183	187	185	193	194	190	200	202	196	193	195	196	192	187	184	188
6	190	190	192	190	190	188	189	188	193	195	193	196	202	199	196	199	200	199	196	195	193	193	196	194
7	195	193	196	194	196	192	190	195	192	190	193	193	194	194	198	199	198	195	193	197	197	196	197	195
8	189	190	192	193	195	186	185	181	187	186	194	189	194	189	184	195	199	195	193	191	200	200	195	193
9	190	188	187	189	190	187	181	185	183	182	176	182	185	176	185	191	191	184	185	186	175	181	181	168
10	163	162	169	174	174	175	172	172	170	179	179	175	184	178	178	184	184	184	182	179	173	173	162	172
11	166	170	167	161	168	165	174	171	183	186	186	189	187	191	185	187	186	185	188	193	189	197	195	192
12	187	188	186	183	182	185	187	184	189	188	189	190	187	192	191	191	192	195	192	182	185	178	179	187
13	188	181	184	182	183	187	188	190	191	193	199	192	192	192	196	194	195	192	195	195	194	187	187	186
14	188	187	189	189	190	182	185	185	187	182	181	191	192	188	191	195	192	194	190	191	190	195	193	184
15	188	186	185	185	185	188	181	184	185	184	189	187	189	188	186	190	184	185	185	186	180	181	181	180
16	183	186	186	182	181	182	183	185	193	193	186	190	190	191	189	197	189	189	188	188	188	186	186	182
17	184	187	180	181	181	181	183	184	185	188	195	187	192	190	190	188	188	192	186	188	181	181	180	186
18	187	188	189	189	189	187	189	187	194	195	199	188	192	189	196	197	200	194	195	191	192	191	190	186
19	198	182	186	181	183	188	187	182	184	187	189	195	185	191	194	195	188	186	187	189	185	179	180	183
20	186	187	185	187	181	184	184	184	184	184	190	191	188	196	184	185	186	187	191	188	188	188	190	187
21	185	188	182	184	181	181	184	187	192	191	192	189	178	179	M	M	M	M	M	M	M	M	M	185
MEAN	185	185	184	183	184	184	183	183	186	186	188	189	190	188	189	191	190	189	189	188	187	187	187	186

M = MISSING DATA

*** SURFACE DATA		LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS ***															
STATION NO. 91487		FANNING										FEB 1967 1009 MRS															
		RELATIVE HUMIDITY (PERCENT IN TENTHS)																									
DAY		LOCAL HOUR																									
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
27	M	M	M	M	M	M	M	M	M	822	817	816	819	802	787	765	730	799	M	M	M	M	M	M	M	796	
28	M	M	M	M	M	M	M	M	M	959	831	865	843	827	844	837	915	834	897	M	M	M	M	M	M	845	
MEAN	C	0	0	0	0	0	0	0	959	826	841	829	823	823	812	840	786	848	0	0	0	0	0	0	0	833	
M = MISSING DATA																											

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***					
STATION NO. 91487			FANNING										MAR 1967										1009 MBS					
DAY			RELATIVE HUMIDITY (PERCENT IN TENTHS)																									
			LOCAL HOUR																									
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
1	M	M	871	871	869	869	905	916	890	873	791	840	786	782	891	861	913	968	920	912	891	857	920	887	933	912	882	
2	M	M	871	871	865	866	874	850	920	850	831	803	783	790	803	775	735	784	773	775	822	833	841	811	811	864	825	
3	M	M	871	871	865	866	874	850	920	850	831	803	783	790	803	775	735	784	773	775	822	833	841	811	811	864	825	
4	M	M	871	871	865	866	874	850	920	850	831	803	783	790	803	775	735	784	773	775	822	833	841	811	811	864	825	
5	M	M	897	859	855	859	867	855	849	833	852	836	837	800	801	826	852	867	867	839	873	878	M	M	M	M	849	
6	M	M	871	871	865	866	874	850	920	850	831	803	783	790	803	775	735	784	773	775	822	833	841	811	811	864	825	
7	M	M	871	871	865	866	874	850	920	850	831	803	783	790	803	775	735	784	773	775	822	833	841	811	811	864	825	
8	M	M	871	871	865	866	874	850	920	850	831	803	783	790	803	775	735	784	773	775	822	833	841	811	811	864	825	
9	M	M	871	871	865	866	874	850	920	850	831	803	783	790	803	775	735	784	773	775	822	833	841	811	811	864	825	
10	M	M	871	871	865	866	874	850	920	850	831	803	783	790	803	775	735	784	773	775	822	833	841	811	811	864	825	
11	M	M	868	863	851	855	867	871	882	836	821	819	850	839	835	836	829	870	836	861	893	852	901	914	880	884	859	
12	M	M	875	890	900	921	942	925	959	929	881	841	855	875	836	800	835	800	842	855	863	853	905	918	881	984	877	
13	M	M	884	880	884	903	883	883	909	955	891	873	886	816	843	838	875	887	873	873	897	953	889	831	831	874	842	
14	M	M	875	855	863	868	867	811	843	816	851	830	805	799	759	808	875	798	815	864	880	872	864	852	839	864	842	
15	M	M	867	859	862	901	849	870	891	888	811	796	808	808	725	779	822	798	815	813	892	841	876	841	848	860	839	
16	M	M	855	859	863	867	867	888	875	845	811	847	797	797	800	788	802	838	855	855	874	861	861	855	876	881	847	
17	M	M	885	889	860	889	843	843	871	841	831	813	821	793	807	800	819	836	855	855	814	870	873	861	856	868	845	
18	M	M	883	960	929	903	895	877	839	872	841	807	851	836	839	630	852	838	835	839	914	912	879	847	835	839	868	
19	M	M	872	904	852	867	857	871	897	859	831	841	816	826	814	821	821	854	829	843	855	843	855	843	867	855	853	
20	M	M	833	868	872	867	845	890	903	908	911	904	828	818	859	841	853	777	831	842	894	886	854	912	899	732	861	
21	M	M	911	930	891	900	942	863	829	854	859	825	823	793	833	851	854	822	852	852	868	860	876	864	904	897	868	
22	M	M	868	883	914	847	857	878	862	851	791	833	826	823	805	791	803	792	829	829	816	840	820	848	835	847	832	837
23	M	M	848	856	838	838	837	877	871	891	831	833	835	873	824	825	827	821	813	829	840	843	848	847	831	802	843	
24	M	M	814	813	846	829	838	854	846	831	831	833	835	771	745	752	759	784	758	836	843	835	839	827	862	825	818	
25	M	M	830	833	821	880	909	872	925	913	867	836	815	855	780	759	836	786	803	822	821	853	860	833	848	864	843	
26	M	M	852	884	M	M	M	863	868	813	825	862	835	820	825	807	803	819	807	797	805	812	797	788	801	841	825	
27	M	M	853	828	844	844	856	872	839	848	800	815	758	769	798	729	801	819	810	798	813	828	845	824	907	854	823	
28	M	M	851	866	905	876	914	930	285	838	839	833	832	793	836	844	833	829	861	853	853	817	849	885	M	856	856	
29	M	M	918	914	889	893	856	873	868	885	841	812	810	826	806	802	877	823	831	806	833	845	806	801	849	856	846	
30	M	M	852	855	885	885	909	864	855	864	833	823	813	836	814	822	829	843	842	858	833	865	869	885	881	868	854	
31	M	M	876	877	864	856	872	908	900	896	838	835	859	817	826	863	855	812	834	869	872	885	863	863	876	872	866	
MEAN			866	819	878	875	874	884	880	875	847	842	829	816	812	815	826	832	839	846	860	851	864	858	865	857	853	
																											M = MISSING DATA	

M = MISSING DATA

HOURLY OBSERVATIONS

PAR 1967

LINE ISLANDS EXPERIMENT

FANNING (ARMY SITE)

SURFACE DATA

STATION NO. 91487

WIND DIRECTION (DEGREES)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	DIRSPD	
1	110	100	95	105	110	110	115	125	110	90	65	85	115	95	100	105	105	110	125	95	105	110	95	110	104107	
2	80	80	85	85	85	95	110	115	120	95	100	95	110	105	85	85	90	100	110	115	135	135	85	70	107 89	
3	95	115	120	130	130	140	135	130	125	120	115	115	95	105	95	100	95	100	100	95	90	80	90	100	100 61	
4	70	75	80	85	90	80	90	95	100	100	100	105	110	105	105	115	125	110	115	110	130	100	95	95	108108	
5	90	95	85	80	90	85	80	80	80	90	100	100	95	100	90	90	80	85	75	75	80	75	70	70	90125	
6	75	70	75	75	80	90	90	85	80	75	80	75	80	80	80	80	80	85	90	75	70	75	70	70	79130	
7	75	75	75	75	75	75	75	75	75	70	75	75	75	75	75	60	70	85	85	85	95	105	100	105	80120	
8	100	110	95	110	105	110	115	100	110	115	105	95	110	110	95	90	105	125	130	135	115	100	55	75	106122	
9	100	95	95	95	85	55	70	95	110	120	120	120	115	115	110	105	105	95	95	85	105	110	105	105	105	101132
10	95	105	100	95	80	85	80	85	80	80	80	75	75	75	75	70	70	75	90	85	75	80	85	90	83148	
11	12	95	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	110	110	110	110	120	106137	
12	11	95	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	110	110	110	110	120	106137	
13	50	85	80	75	80	75	90	100	105	115	120	125	120	120	110	110	120	120	110	90	85	105	105	100	113149	
14	90	90	90	90	90	90	100	110	105	120	115	120	110	110	100	90	90	100	90	85	80	80	90	85	101122	
15	85	80	75	60	70	95	85	90	85	75	80	90	80	80	80	80	70	65	55	65	65	75	75	75	76 91	
16	70	75	75	75	75	80	75	75	80	95	90	95	90	90	95	105	105	105	105	105	110	110	105	105	105	92 99
17	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	110	110	110	110	120	106137	
18	115	125	130	120	110	115	110	115	110	105	110	130	110	130	130	130	110	120	110	90	85	105	105	100	113149	
19	105	110	115	115	125	120	120	120	120	130	130	120	120	115	100	105	95	100	95	100	95	75	85	85	112129	
20	90	105	105	60	30	30	35	30	45	55	55	60	65	55	45	45	40	35	60	60	40	30	25	45	51106	
21	60	40	50	55	50	45	55	55	60	65	75	70	70	60	65	55	70	70	50	65	60	65	95	85	63106	
22	90	100	130	135	135	140	145	140	135	135	130	135	130	120	115	100	120	115	120	130	135	135	135	140	124146	
23	110	110	110	105	110	95	55	120	105	140	135	140	135	135	135	135	135	135	135	135	135	135	135	140	128125	
24	135	140	135	135	135	130	125	130	130	120	125	130	105	95	100	80	75	95	120	95	80	35	35	45	115 59	
25	65	65	60	125	40	160	140	135	135	135	135	135	120	125	105	100	100	105	100	90	85	85	90	90	108 91	
26	90	85	100	110	105	110	120	110	110	120	120	120	120	120	105	100	105	100	105	105	105	105	120	125	109129	
27	125	120	120	125	120	125	115	120	120	125	125	130	130	125	135	120	130	130	130	130	130	130	130	135	129112	
28	105	110	110	105	110	125	135	135	135	135	135	135	135	135	130	130	135	135	135	130	130	135	130	135	129112	
29	135	130	130	115	125	130	115	120	125	120	120	110	105	105	120	120	120	115	100	90	90	95	100	100	115132	
30	95	100	100	110	115	110	110	110	110	105	95	90	95	80	75	75	80	75	75	50	55	55	80	80	90105	
31	85	90	85	80	100	75	80	75	60	65	85	65	70	70	75	80	75	85	95	85	70	55	75	80	77112	
MEAN	95	97	100	98	99	100	103	104	104	107	106	105	105	103	99	96	100	103	102	97	95	93	94	94	100	
DIR	106	105	106	108	106	105	111	114	112	119	117	118	121	116	110	114	112	116	118	115	108	104	102	104	111	

MEAN

DIR

SPD

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA

*** SURFACE DATA

LINE ISLANDS EXPERIMENT

STATION NO. 91487 FANNING (ARMY SITE)

HOURLY OBSERVATIONS

MAY 1967

SCALAR WIND SPEED (MPH IN TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	89	101	62	86	124	131	150	108	82	70	70	102	137	125	92	126	130	167	146	90	69	68	107	102	111
2	72	76	69	65	55	58	64	57	59	70	74	75	61	60	57	57	57	69	61	63	64	70	71	80	96
3	42	84	95	94	85	98	117	104	145	146	150	151	127	119	124	120	116	115	113	115	105	104	109	114	64
4	122	121	127	121	115	109	113	104	107	111	112	117	133	117	113	126	144	148	124	127	138	123	128	125	122
5	118	119	118	126	119	118	109	124	110	114	102	100	107	105	97	107	108	115	126	123	114	110	118	119	114
6	131	132	139	136	124	129	124	114	128	134	131	127	125	128	128	124	123	136	135	134	128	128	121	109	128
7	119	104	111	129	149	140	137	137	143	114	149	138	127	136	137	151	142	131	143	123	113	130	123	125	131
8	133	137	134	143	117	124	116	119	105	107	106	107	122	126	109	92	119	118	112	136	150	146	122	134	123
9	122	122	130	144	111	150	166	140	155	136	151	129	130	120	86	110	92	130	170	145	144	77	67	122	128
10	137	148	144	150	140	134	116	160	148	151	151	126	143	134	126	123	120	117	145	140	145	131	137	133	138
11	140	132	170	125	146	146	141	150	157	163	150	157	164	162	157	152	144	157	167	150	149	155	158	158	150
12	140	148	138	166	153	151	147	157	157	164	169	168	192	153	175	198	194	192	191	195	179	153	147	146	169
13	144	125	124	122	153	159	162	157	134	165	168	165	166	136	119	109	96	99	90	87	92	81	84	75	124
14	69	67	66	90	79	90	89	83	107	105	106	98	89	88	86	86	85	90	116	112	111	110	105	95	93
15	98	94	93	95	92	84	50	96	99	95	102	103	99	92	107	108	111	109	99	113	118	115	110	132	102
16	138	137	136	136	142	134	131	126	135	137	134	127	116	130	121	133	149	154	155	155	149	147	157	141	139
17	127	133	156	155	131	182	174	173	174	163	147	163	157	173	158	176	152	172	140	167	133	131	120	128	152
18	111	123	142	144	158	154	163	177	174	178	171	185	156	131	121	122	116	111	102	108	92	86	73	77	132
19	82	74	85	74	106	116	70	103	105	109	111	115	108	131	135	149	144	130	183	166	133	96	72	38	112
20	134	74	103	99	84	56	111	110	118	115	110	114	116	114	99	122	114	122	103	111	111	121	116	95	109
21	114	146	267	195	167	137	132	123	157	163	166	166	137	144	146	137	151	150	149	160	143	128	113	118	151
22	116	111	93	69	74	69	54	68	135	152	159	153	143	140	155	161	163	165	162	161	139	161	143	143	130
23	124	106	74	82	94	52	82	73	46	54	54	70	72	74	80	73	52	50	47	39	42	41	34	50	68
24	65	53	45	40	30	37	113	129	131	127	115	114	125	122	103	104	94	90	120	122	140	137	120	130	100
25	139	132	118	128	128	134	138	124	140	152	140	149	146	139	121	115	126	128	118	131	124	125	136	128	132
26	125	133	130	126	124	130	112	117	112	136	146	141	137	122	99	99	107	104	99	86	77	84	97	77	113
27	87	79	89	72	75	83	117	121	119	122	130	144	147	144	137	116	113	129	128	134	123	203	113	134	115
28	122	130	117	139	142	131	147	131	134	150	158	148	160	163	160	142	139	141	123	115	117	123	115	115	136
29	104	106	102	108	114	119	127	128	122	113	127	107	100	103	100	113	118	128	110	112	92	96	97	113	110
30	95	97	108	109	114	105	110	132	130	145	131	104	117	104	128	124	108	114	115	98	117	120	113	116	115
31	1-2	111	115	116	115	117	121	124	127	129	127	129	128	125	118	122	121	126	126	123	118	113	110	112	120

M = MISSING DATA

*** SURFACE DATA										LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***	
STATION NO. 91487										FANNING (ARMY SITE)										APR 1967											

*** SURFACE DATA		LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***				
STATION NO. 91487		FANNING (HOBITAILLE BEACH)										MAR 1967														
		WIND DIRECTION (DEGREES)																								
DAY		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
26	M																									01P50
28	150	150	150	140	150	145	140	145	140	140	140	135	135	135	135	140	135	135	135	160	150	150	150	150	150	152131
30	115	130	125	135	145	145	140	135	135	130	120	120	120	120	120	110	95	105	105	95	100	105	100	100	100	11P124
31	105	100	115	130	105	105	110	100	100	100	95	110	105	100	95	95	115	110	115	175	120	100	105	110	105	107124
MEAN																										
DIR	125	129	130	135	136	133	131	127	125	122	123	123	129	128	127	125	126	124	127	126	123	129	117	122	119	126
SPD	116	116	115	141	130	129	147	137	137	136	137	130	132	136	124	114	124	126	126	120	121	115	122	123	126	

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***			
STATION NO. 91487			FANNING (PORTVILLE BEACH)												MAR 1967															
			SCALAR WIND SPEED (MPH IN TEETHS)																											
DAY				LOCAL HOUR																										
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN					
28	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	131					
29	140	131	115	148	148	145	159	149	155	157	159	161	164	173	163	149	139	134	138	135	137	125	116	131	140	131				
30	122	131	119	123	146	153	151	140	135	177	132	116	127	127	108	104	146	144	138	131	122	113	124	116	229					
31	105	107	115	154	119	105	145	145	144	148	128	121	123	127	133	120	121	122	134	113	129	122	115	136	127					
MEAN	124	123	119	142	137	134	152	145	144	144	140	136	139	144	134	123	131	133	137	126	128	122	129	131	134					

M = MISSING DATA

HOURLY OBSERVATIONS

LINE ISLANDS EXPERIMENT

SURFACE DATA

STATION NO. 9.47 FANNING (PORTIATILLE BEACH)

APR 1967

WIND DIRECTION (DEGREES)

DAY	LOCAL HOUR																								MEAN DIRSPD
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	100	125	124	105	110	95	90	110	105	105	105	100	110	105	105	105	115	120	135	130	135	130	125	125	112153
2	135	135	110	95	115	130	135	130	130	130	130	135	130	125	130	135	135	135	120	125	135	140	120	110	128106
3	115	150	140	160	165	160	165	155	145	140	130	115	110	105	105	100	105	90	110	105	105	105	115	125	12877
4	125	130	130	125	130	130	140	140	140	140	140	145	145	140	145	150	145	140	135	130	130	125	115	136110	
5	110	120	130	135	135	140	135	135	135	135	135	130	130	130	130	130	130	125	125	105	110	110	105	105	126125
6	110	110	130	130	125	150	130	130	125	125	125	120	120	115	110	110	110	105	105	105	115	125	125	120	119133
7	120	120	130	130	130	125	125	135	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	142129
8	150	145	145	135	135	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	145129
9	145	145	145	130	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135	150152
10	150	190	185	170	175	175	175	165	165	165	160	145	145	145	140	140	145	140	140	145	135	130	130	130	153121
11	115	135	160	155	160	155	145	135	130	135	135	130	130	130	140	140	140	145	140	140	145	135	135	135	15880
12	145	135	135	135	135	135	125	135	125	120	125	130	130	130	130	125	120	135	140	140	145	135	135	135	14089
13	130	135	135	135	135	145	145	145	135	135	140	140	140	140	140	140	135	135	135	140	140	145	150	140	132122
14	135	135	135	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	145	150	140	140128
MEAN	DIR	129	134	137	133	135	137	136	138	136	137	134	135	137	136	135	137	134	133	134	135	137	133	130	135
SPD	115	124	126	117	120	117	119	124	126	121	117	115	114	113	108	105	106	103	113	110	116	112	110	107	111

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (1/10 TENTHS).

M = MISSING DATA

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***		
STATION NO. 91477			FANNING (MOBITAILLE BEACH)										APR 1967												
			SCALAR WIND SPEED (MPH IN TENTHS)																						
DAY			LOCAL HOUR																						
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	204	303	282	245	261	221	179	188	148	122	133	120	127	127	115	104	109	99	128	117	112	107	102	110	157
2	110	119	109	90	91	121	146	14	149	145	123	122	108	100	96	101	92	84	85	93	96	100	81	74	108
3	50	65	91	90	101	110	108	104	86	77	64	66	85	80	68	63	65	61	89	79	97	102	114	113	85
4	116	100	91	85	88	51	88	88	115	130	136	131	129	125	123	106	97	95	129	114	112	134	139	131	112
5	118	110	106	115	126	119	122	119	132	126	119	124	118	141	133	134	147	157	149	122	131	139	143	132	128
6	142	121	132	147	125	122	130	131	137	152	149	156	140	132	138	126	122	120	116	130	136	145	148	148	135
7	145	133	138	124	122	135	123	119	120	121	116	112	114	129	177	132	139	139	134	138	167	144	153	152	137
8	153	151	161	148	162	158	149	161	165	165	157	150	160	162	147	148	150	131	140	149	150	161	151	151	154
9	164	141	152	163	127	135	153	145	168	153	146	124	119	100	88	96	105	109	118	111	109	81	72	73	124
10	100	97	105	91	91	95	83	90	99	90	93	100	98	103	105	113	83	77	87	79	66	51	41	23	86
11	61	84	76	60	81	103	106	110	115	104	90	94	95	88	87	64	64	68	71	79	116	128	114	119	91
12	115	136	122	126	129	87	112	117	131	116	122	124	123	121	115	129	129	134	138	142	138	123	118	122	124
13	140	117	138	123	129	131	142	132	128	125	118	123	123	129	122	119	130	121	138	150	150	130	128	122	150
14	116	131	131	125	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	126
MEAN	124	129	131	124	126	125	126	129	131	125	120	119	118	118	113	110	110	107	117	116	122	119	116	113	120

M = MISSING DATA

*** SURFACE DATA ***

LINE ISLANDS EXPERIMENT

STATION NO. 91490

CHRISTMAS (NE POINT - MRI)

HOURLY OBSERVATIONS

MAR 1967

RAINFALL (MM & TENTHS)

DAY	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	TOTAL
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22																									
23																									
24																									
25																									
26																									
27																									
28																									
29																									
30																									
31																									
TOTAL	20	3	0	5	0	0	3	0	0	0	3	23	3	0	0	0	0	8	3	54	10	6	41	25	207

M = MISSING DATA
T = TRACE

HOURLY OBSERVATIONS

APR 1967

LINE ISLANDS EXPERIMENT

SURFACE DATA

STATION NO. 91490 CHRISTMAS ILE POINT -- MRI

RAINFALL (MP & TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

M = MISSING DATA
T = TRACE

HOURLY OBSERVATIONS

MAR 1967

SURFACE DATA

LINE ISLANDS EXPERIMENT

STATION NO. 9149C CHRISTMAS (LUNGER SITE -- WRI)

RAINFALL (MM & TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL
14																																
15																																
16																																
17																																
18																																
19																																
20																																
21																																
22																																
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24																																
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28																																
29																																
30																																
31																																
TOTAL	23	6	0	0	10	5	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	8	0	40	0	0	0	0	10	0	0	97

M = MISSING DATA
T = TRACE

*** SURFACE DATA		LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***					
STATION NO. 91490		CHRISTMAS (LONDON SITE -- MRI)										APR 1967															
		RAINFALL (MM & TENTHS)																									
DAY		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
8		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
13		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
15		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
16		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	
M = MISSING DATA T = TRACE																											

M = MISSING DATA
T = TRACE

*** SURFACE DATA ***
 STATION NO. 91490
 LINE ISLANDS EXPERIMENT
 HOURLY OBSERVATIONS
 MAR 1967
 CHRISTMAS (NE. CAP. -- MRI)

DAY	RAINFALL (MM & TENTHS)												LOCAL HOUR												TOTAL																	
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
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35																																										
36																																										
37																																										
38																																										
39																																										
40																																										

M = MISSING DATA
 T = TRACE

*** SURFACE DATA		LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***	
STATION NO. 91493		CHRISTMAS (SE POINT - MRI)												MAR 1967													
		RAINFALL (MM & TENTHS)																									
		LOCAL HOUR																									
DAY		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
24	M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
25	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
28	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	23	3	0	0	34	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	23	3	0	0	34	

M = MISSING DATA
Y = TRACE

*** SURFACE DATA ***		LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***	
STATION NO. 01440		CHRISTMAS (SE POINT) -- WRT												APR 1967													
		RAINFALL (MM & TENTHS)																									
DAY		LOCAL HOUR																									
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

M = MISSING DATA
T = TRACE

W = MISSING DATA
T = TRACE

*** SURFACE DATA		LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***	
STATION N. 91490		CHRISTMAS												APR 1967													
DAY	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	LOCAL HOUR				C16	C17	C18	C19	C20	C21	C22	C23	C24	MEAN		
												12	13	14	15												
1	0	1	10	10	10	8	10	10	10	10	10	10	10	10	10	10	10	10	17	3	1	1	1	1	5	8	
2	5	5	5	6	6	7	8	5	3	3	2	2	6	5	7	5	5	4	7	6	3	2	2	2	0	5	
3	0	0	0	4	10	10	9	4	6	6	4	4	7	8	10	9	9	5	4	3	3	4	2	0	5		
4	0	0	0	1	1	3	4	4	5	4	3	2	3	1	1	1	1	2	4	3	0	2	2	4	2		
5	1	4	1	3	2	6	3	4	5	6	2	1	2	4	7	5	7	2	2	1	0	0	1	0	3		
6	0	0	1	0	0	5	6	4	2	1	3	5	7	7	10	10	7	4	5	10	0	3	1	1	4		
7	1	1	1	2	2	6	6	3	6	8	7	3	3	5	8	9	5	4	2	0	3	5	6	1	4		
8	4	3	2	7	5	6	9	9	10	10	10	10	10	10	8	9	10	9	8	4	0	1	1	0	6		
9	0	0	0	0	0	0	3	7	8	5	3	1	2	2	2	2	1	1	1	1	0	0	0	0	2		
10	0	1	1	1	1	2	3	3	5	4	3	2	2	3	3	3	8	8	10	10	6	2	0	10	4		
11	10	10	9	10	10	10	8	8	10	10	10	9	9	9	10	10	10	10	10	10	3	0	2	4	8		
12	5	7	5	2	0	3	6	10	10	9	8	8	5	3	4	3	1	1	2	1	1	1	1	1	4		
13	1	1	1	0	1	3	9	9	5	4	4	9	5	4	2	2	2	2	1	1	1	1	2	4	4		
14	5	0	3	2	2	3	0	2	5	7	5	4	4	8	9	5	2	3	6	5	0	0	0	0	3		
15	1	3	0	0	0	6	10	10	10	10	8	8	9	9	9	7	4	4	2	1	1	1	1	0	5		
16	0	0	0	0	0	4	5	7	6	6	7	6	4	4	4	4	5	6	4	4	2	2	6	1	4		
17	1	0	0	0	0	0	3	3	3	1	1	1	1	1	3	5	6	7	7	5	4	2	4	9	3		
18	10	10	10	7	0	4	4	8	10	10	10	10	10	8	8	8	7	5	3	3	3	2	1	1	6		
19	1	1	1	1	1	5	6	8	7	7	7	3	6	6	2	6	6	5	6	5	1	1	2	0	4		
20	0	1	2	1	0	2	2	4	6	2	2	5	2	2	4	3	5	3	6	5	3	2	2	4	3		
21	4	2	5	0	0	5	2	2	2	3	3	3	2	4	4	4	4	4	4	4	4	4	4	4	3		
MEAN	2	2	3	3	2	5	6	6	6	6	6	5	5	5	6	6	6	5	5	4	2	2	2	3	4		
M = MISSING DATA																											

M = MISSING DATA

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT										FOURTY OBSERVATIONS										MAR 1957			
STATION NO. 91491			CHRISTMAS																							
DAY	STATION PRESSURE (WAS IN TENTHS, 1000s)										LOCAL FCUP															
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
2	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
4	78	73	71	71	74	81	M	54	98	M	M	M	M	75	68	61	59	59	64	72	78	86	90	93	90	79
5	80	74	70	65	74	82	88	95	100	100	98	90	91	71	64	66	66	68	75	81	87	85	86	84	80	80
6	80	76	71	73	75	81	98	97	105	107	102	96	74	66	63	63	63	64	75	81	85	85	88	86	80	80
7	83	68	63	63	65	71	78	90	95	95	90	85	75	65	56	51	49	54	58	65	70	77	79	78	72	72
8	73	65	61	63	64	69	76	81	92	95	93	88	75	68	58	54	54	58	66	73	85	88	90	88	74	74
9	81	74	69	69	75	78	85	91	98	100	100	91	M	75	68	65	66	65	79	83	85	85	87	85	80	80
10	79	74	64	63	69	75	81	91	96	98	95	88	M	76	71	69	68	71	83	90	91	95	98	97	82	82
11	88	85	75	78	83	85	91	104	108	104	102	93	87	75	73	71	71	75	83	89	95	98	102	102	98	98
12	87	84	81	80	81	85	95	102	106	117	105	100	84	81	75	73	75	74	84	90	95	97	102	100	90	90
13	95	85	81	80	81	85	95	106	108	110	108	102	90	82	77	77	75	79	87	91	98	103	106	105	92	92
14	98	90	85	85	88	91	100	105	108	108	107	95	84	74	71	99	73	74	88	93	102	105	108	112	93	93
15	102	98	91	91	91	105	111	115	120	113	104	95	89	86	85	85	86	90	97	104	108	112	117	119	101	101
16	112	107	103	100	100	105	113	120	125	125	119	113	104	99	98	98	96	102	113	122	125	131	131	131	113	113
17	125	119	115	113	115	117	125	132	137	139	139	129	112	115	112	108	108	112	122	122	125	129	130	126	122	122
18	119	115	108	108	105	105	115	119	125	127	125	122	113	103	95	91	91	95	98	108	115	119	119	119	111	111
19	108	100	96	98	98	102	106	114	116	116	112	105	98	85	78	78	78	82	M	99	105	112	115	113	101	101
20	106	102	95	89	91	93	102	108	115	115	115	102	88	85	78	75	78	86	91	102	106	112	117	115	99	99
21	108	95	89	85	89	91	102	111	111	115	117	110	104	93	81	M	85	91	100	108	119	121	124	125	103	103
22	120	102	91	81	81	85	98	105	109	115	115	108	96	89	86	78	81	82	89	99	102	107	110	108	97	97
23	105	93	87	85	85	91	98	108	122	122	115	108	98	85	78	75	75	81	83	95	102	103	102	109	96	96
24	102	95	89	84	89	91	102	114	119	119	115	105	100	90	81	78	81	87	95	105	112	119	125	119	101	101
25	115	108	105	105	105	105	112	119	125	129	130	116	106	94	M	M	M	M	M	102	M	M	M	M	112	112
26	M	109	M	M	M	M	M	110	M	M	M	M	M	88	85	81	81	81	89	95	100	108	110	108	96	96
27	105	94	88	88	88	91	102	105	112	112	112	108	102	91	81	78	75	78	91	90	95	100	104	102	95	95
28	100	93	84	84	88	90	100	102	105	105	102	95	85	75	69	69	69	73	80	85	88	95	98	98	85	85
29	51	71	64	64	64	68	75	81	85	78	78	77	61	54	49	49	49	51	63	70	79	86	86	85	71	71
30	85	68	63	61	61	59	71	75	78	81	78	75	65	54	47	47	47	54	63	75	81	85	90	90	69	69
31	83	75	63	60	58	61	71	75	78	81	78	78	67	54	51	47	49	54	64	75	85	88	95	91	70	70
MEAN	97	89	82	82	83	86	95	102	107	109	106	100	91	81	74	72	72	76	82	91	96	101	104	102	91	91

M = MISSING DATA

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS												***				
STATION NO. 9145*			CHRISTMAS										APR 1967												***				
DAY	01	02	03	04	05	06	07	08	09	10	11	LOCAL HOUR			14	15	16	17	18	19	20	21	22	23	24	MEAN			
1	M	85	81	78	78	81	81	87	100	105	107	104	100	90	68	54	54	54	56	64	81	88	95	88	97	82			
2	88	75	71	70	71	73	85	91	95	102	102	98	98	85	71	57	53	53	53	59	70	79	86	91	90	80			
3	97	81	78	75	75	77	79	90	102	104	98	91	85	85	71	62	62	61	66	73	83	90	96	100	100	81			
4	83	81	77	78	78	83	90	95	102	102	100	95	85	85	69	64	62	59	62	71	83	88	91	95	M	82			
5	80	68	64	62	62	66	79	86	93	97	91	85	75	58	54	54	54	54	56	61	71	73	83	87	90	73			
6	88	81	78	78	81	81	87	100	105	107	104	100	90	68	54	54	54	54	56	64	81	88	95	88	97	82			
7	91	81	79	79	81	85	88	98	102	105	105	95	85	71	66	64	64	64	66	71	84	88	91	91	90	84			
8	90	73	70	68	70	71	83	91	102	102	98	95	81	67	54	52	52	54	54	63	75	78	83	85	87	77			
9	81	75	77	75	75	81	91	95	97	95	93	91	78	78	75	75	75	75	75	88	98	104	104	104	104	86			
10	95	85	85	83	85	85	90	102	110	112	108	105	98	85	75	68	70	75	80	91	100	102	105	107	92				
11	102	92	91	90	90	91	95	112	120	122	120	112	108	93	85	81	81	81	81	86	101	108	115	117	117	109			
12	115	102	95	88	88	90	97	112	119	122	120	114	108	87	80	78	78	78	78	81	95	105	107	108	108	99			
13	102	91	88	86	86	88	91	96	112	117	117	115	108	2	88	81	81	83	85	90	99	105	108	114	114	94			
14	112	104	102	102	102	104	108	122	125	125	125	119	109	98	91	91	91	95	102	115	119	123	127	127	110				
15	125	117	113	113	113	117	121	131	137	131	135	129	124	112	105	102	102	105	115	125	129	135	137	129	121				
16	132	119	115	115	115	122	127	139	142	142	139	133	125	115	108	105	108	112	115	133	139	146	149	149	127				
17	146	127	122	119	119	122	125	139	152	149	139	135	122	112	105	105	105	108	115	119	122	124	125	125	124				
18	122	125	123	122	122	125	131	144	142	142	137	135	122	116	110	107	107	110	117	135	137	139	146	142	127				
19	135	129	125	125	125	129	134	146	149	149	148	142	132	122	115	112	112	112	119	131	134	139	141	141	131				
20	137	129	124	124	124	125	132	139	148	149	146	142	129	115	105	107	108	108	112	125	129	135	137	135	128				
21	134	125	121	119	119	122	122	128	131	129	129	122	115	104	M	M	M	M	M	M	M	M	M	M	M	123			
MEAN	108	97	94	93	93	96	102	113	119	119	116	111	97	89	80	79	77	81	87	99	104	109	112	112	100				
M = MISSING DATA																													

M = MISSING DATA

SURFACE DATA

LINE ISLANDS EXPERIMENT

STATION NO. 9149C

MAR 1967

CHRISTMAS

1009 MBS

DAY	CRY BULB TEMPERATURE (FAHR IN TENTHS)																							
	LOCAL HOUR												HOURLY OBSERVATIONS											
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
3	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
4	770	771	770	772	770	775	770	770	776	798	804	804	810	810	806	806	807	807	807	799	788	778	778	773
5	785	785	783	781	784	790	789	791	796	799	804	809	810	810	810	808	807	797	790	785	789	790	785	794
6	782	780	790	780	781	783	788	796	796	806	809	811	813	810	815	810	810	804	800	792	796	793	790	789
7	800	792	788	782	781	784	791	796	806	811	816	811	815	812	791	802	799	800	800	810	795	799	789	798
8	795	798	793	797	798	790	792	800	806	801	810	815	811	817	815	817	807	790	798	800	800	798	795	802
9	801	799	790	791	789	797	794	795	782	805	810	812	M	814	812	804	806	803	799	792	790	790	789	798
10	785	785	789	791	789	789	775	780	804	801	805	808	M	805	808	807	805	801	792	789	788	782	789	794
11	788	788	791	789	787	787	790	798	799	805	815	809	808	812	810	808	812	803	792	794	790	791	791	792
12	790	787	790	798	788	788	800	798	790	809	804	808	820	812	815	810	800	788	797	780	790	778	778	795
13	784	782	780	779	780	787	789	785	785	793	799	802	809	804	807	810	810	803	801	798	798	792	789	785
14	782	780	782	779	779	782	781	788	793	797	801	809	807	811	810	810	806	800	788	783	780	782	783	792
15	784	784	785	785	785	785	783	788	795	798	798	805	804	814	803	810	801	801	791	793	780	785	783	788
16	780	777	779	775	776	775	783	785	800	800	805	810	817	815	813	810	805	795	791	795	792	790	787	793
17	781	780	779	777	780	789	785	788	794	798	794	802	812	810	810	806	805	795	785	788	783	770	775	778
18	772	775	775	770	770	770	780	788	790	792	799	801	801	803	806	807	800	791	782	783	781	781	782	787
19	779	774	772	773	780	780	770	789	798	812	850	835	813	830	830	820	820	M	782	785	781	779	780	800
20	775	775	772	775	779	774	781	785	790	794	800	799	814	809	810	808	798	798	770	774	775	774	782	760
21	770	765	770	775	768	770	778	775	789	799	809	809	805	799	780	M	774	780	774	770	778	775	780	776
22	778	777	776	772	771	772	775	778	785	790	795	795	795	795	792	790	792	792	782	780	772	774	774	782
23	774	774	770	770	775	771	780	795	801	800	795	795	792	790	794	790	792	792	780	780	780	775	780	785
24	775	775	771	768	767	769	773	790	796	795	815	814	801	806	807	804	800	797	780	778	773	770	770	786
25	770	771	766	764	762	762	771	790	782	783	786	792	825	816	M	M	M	M	782	M	M	M	M	781
26	M	780	M	M	M	M	M	764	M	M	M	M	M	M	798	796	795	791	780	777	773	775	775	772
27	773	769	769	769	770	770	778	785	782	798	798	805	790	806	802	799	800	788	783	780	779	781	784	785
28	781	780	777	776	778	778	780	780	786	784	791	800	806	811	801	800	796	790	786	782	780	782	780	781
29	779	780	779	778	780	779	784	790	793	778	800	798	804	809	815	812	807	802	790	788	779	790	782	791
30	788	788	786	784	779	779	785	786	796	800	800	805	815	812	812	808	810	795	775	779	773	781	778	777
31	776	782	782	780	780	781	782	780	792	790	800	800	811	815	805	810	806	798	796	782	785	785	783	782
MEAN	781	780	780	779	779	780	783	789	794	799	804	806	809	809	807	806	803	797	788	786	785	783	783	782

M = MISSING DATA

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***		
STATION NO. 91490			CHRISTMAS												APR 1967												1009 MBS		
DAY			DRY BULB TEMPERATURE (FAHR IN TENTHS)												LOCAL HOUR												MEAN		
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1	780	779	782	778	778	777	790	790	800	800	802	796	805	808	811	810	805	798	792	790	788	786	785	785	792				
2	782	782	783	781	784	783	782	792	800	783	808	810	817	812	818	810	808	795	791	789	777	779	780	793					
3	780	780	779	777	772	773	780	784	798	798	800	806	810	808	812	810	800	797	788	784	788	781	778	776	790				
4	775	772	771	770	M	777	785	790	798	798	804	809	813	819	817	810	810	808	790	788	788	783	779	779	793				
5	779	779	779	781	781	780	784	790	787	799	795	802	800	800	805	806	792	790	790	787	787	784	782	789					
6	780	780	777	778	778	778	780	789	794	801	809	815	827	830	833	830	811	815	807	799	790	787	784	793					
7	780	782	780	777	774	778	780	783	790	780	792	800	807	804	803	800	790	794	781	780	782	780	779	787					
8	778	777	776	779	777	779	779	782	792	793	797	799	798	800	803	797	791	789	780	782	780	782	783	786					
9	781	780	778	780	771	783	764	779	790	790	801	799	808	810	807	810	801	790	784	780	780	775	772	770	788				
10	762	770	730	730	710	740	780	780	790	790	795	798	815	825	828	830	815	800	801	794	795	788	791	781	780	785			
11	782	781	780	780	778	778	778	778	786	797	800	813	825	830	810	821	818	815	810	798	791	784	782	780	779	796			
12	780	780	783	782	781	782	784	795	802	808	815	818	812	815	814	822	815	804	794	796	790	786	778	776	795				
13	770	774	779	781	784	785	789	790	790	790	805	810	811	810	814	814	806	800	790	783	782	781	785	788	794				
14	789	781	780	781	785	780	793	798	800	804	814	823	818	820	823	810	813	800	808	794	792	790	790	790	799				
15	788	780	780	780	779	780	785	791	808	821	823	831	835	841	841	840	845	815	795	794	790	780	784	780	804				
16	777	775	780	780	778	780	780	800	810	810	820	826	830	830	830	827	824	820	800	799	792	789	789	791	782	800			
17	781	779	779	779	775	785	795	804	808	807	814	820	820	821	818	810	805	790	785	785	781	780	778	795					
18	780	782	782	781	780	780	785	795	810	813	820	815	815	815	832	832	820	817	809	798	792	790	790	792	788	800			
19	794	778	780	780	777	786	790	800	810	814	820	818	824	826	826	826	823	810	810	797	792	791	790	790	788	800			
20	762	782	779	780	780	785	792	799	808	812	816	824	826	826	813	808	809	802	795	791	790	788	786	785	798				
21	780	778	778	770	770	772	778	795	809	812	829	837	839	825	M	M	M	M	M	M	M	M	M	M	M	798			
MEAN	780	779	777	776	775	778	783	792	804	810	814	816	817	817	814	808	800	792	788	787	785	783	782	782	794				
M = MISSING DATA																													

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT			HOURLY OBSERVATIONS										***									
STATION NO. 91490			CHRISTMAS			APR 1967										1009 MBS									
DAY	CENT POINT TEMPERATURE (FAHR IN TENTHS)																								
	LOCAL HOUR																								
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	724	725	728	721	712	723	731	734	743	738	743	736	743	745	740	740	741	736	736	745	734	735	731	734	734
2	728	730	729	726	733	737	737	747	750	751	768	747	756	757	754	743	744	745	739	733	736	736	735	733	741
3	731	729	725	724	734	735	745	749	738	730	728	727	733	725	726	721	720	723	720	721	726	721	712	710	727
4	713	709	712	710	M	720	724	726	723	729	728	720	739	739	739	730	733	733	734	737	743	737	738	737	729
5	737	738	737	734	736	735	736	738	742	743	736	740	744	743	743	745	744	745	741	744	744	742	742	738	740
6	731	726	724	724	728	738	752	756	748	751	755	754	760	757	742	752	756	751	750	753	751	755	754	751	747
7	752	751	749	746	743	742	746	744	748	747	733	732	735	737	728	737	737	738	737	730	739	737	738	738	740
8	737	739	730	737	736	738	741	740	744	745	747	744	733	732	740	741	735	737	738	737	732	733	730	729	738
9	730	725	724	723	726	732	714	732	719	714	729	719	723	725	722	725	720	710	724	720	711	713	715	710	721
10	710	701	696	698	679	711	731	722	725	730	727	736	734	717	716	724	714	712	706	701	706	711	712	723	714
11	731	730	731	738	746	746	745	747	753	749	760	758	757	746	751	741	740	742	740	735	734	731	731	748	743
12	731	728	729	725	729	725	753	752	753	755	762	758	751	746	752	746	750	755	749	751	738	740	742	739	744
13	739	740	737	747	743	744	741	748	754	754	762	758	746	747	750	750	753	737	737	734	736	733	740	745	745
14	736	736	738	736	734	738	745	745	747	751	753	751	754	750	751	746	746	741	738	732	730	726	726	723	741
15	720	729	732	733	734	738	750	752	755	750	748	752	747	757	757	751	757	750	752	755	748	744	742	741	746
16	740	740	745	735	736	741	741	756	763	762	763	764	765	765	762	753	748	744	743	736	737	737	746	740	748
17	737	737	734	737	734	738	740	738	748	744	748	753	750	756	746	748	747	746	741	736	736	729	723	724	740
18	729	719	714	727	723	719	736	746	740	742	742	746	745	753	753	765	759	758	751	747	737	741	733	737	741
19	724	731	726	722	732	732	726	738	747	753	750	747	756	757	757	757	744	740	731	736	733	732	734	729	739
20	730	736	737	735	729	736	736	735	744	744	744	745	756	755	760	746	743	746	732	729	734	737	735	736	741
21	731	727	727	727	727	728	737	733	743	744	753	750	747	741	M	M	M	M	M	M	M	M	M	M	737
MEAN	731	730	729	729	730	733	738	742	745	745	746	745	746	746	743	744	741	740	737	736	734	734	733	733	738

M = MISSING DATA

M = MISSING DATA

*** SURFACE DATA			CHRISTMAS												LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***	
STATION NO. 51490																											MAR 1967												1005 WBS	
			SPECIFIC HUMIDITY (G/KG IN TENTHS)																																					
			LOCAL HOUR																																					
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN															
2	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M															
4	164	163	163	159	162	165	M	165	165	172	178	169	176	179	170	175	176	177	171	169	168	170	165	162	170															
5	171	176	168	167	165	179	174	172	174	170	174	176	175	177	178	169	176	172	170	172	164	168	165	170	172															
6	169	162	170	169	169	170	171	167	170	173	171	172	177	175	174	175	173	176	174	177	176	174	175	176	172															
7	177	176	175	169	169	171	175	182	177	182	181	184	182	187	180	186	189	186	186	186	187	183	189	195	181															
8	180	186	174	191	186	185	190	186	183	183	179	180	187	183	190	190	190	191	194	190	185	191	194	188	187															
9	182	186	184	188	189	183	185	183	181	192	192	182	M	189	188	189	184	185	182	182	176	175	176	171	184															
10	176	176	177	179	184	184	144	147	168	167	184	184	M	185	185	186	181	191	176	179	179	181	177	179	177															
11	176	179	175	180	176	176	177	182	182	185	187	188	188	188	186	188	186	185	184	180	180	182	182	172	182															
12	180	176	178	180	183	182	188	191	193	187	189	190	187	188	191	187	189	195	186	190	188	193	189	189	187															
13	180	193	178	174	179	182	185	185	175	177	181	184	176	178	172	179	184	176	177	177	177	176	180	179	179															
14	180	178	177	175	175	177	175	176	175	181	181	185	182	188	187	187	184	186	186	186	181	178	177	181	181															
15	177	177	176	175	173	172	183	180	193	178	180	180	185	187	181	180	186	182	181	174	178	180	179	181	179															
16	179	180	180	180	180	181	186	182	190	189	189	193	192	191	192	188	189	192	193	193	193	194	185	185	187															
17	182	182	180	179	182	184	183	183	190	189	185	188	188	188	186	187	185	182	174	171	176	176	174	170	182															
18	175	170	170	176	167	178	178	178	182	180	182	181	181	181	180	184	183	176	170	170	173	168	169	166	176															
19	168	166	168	169	169	167	177	175	181	172	178	178	178	178	175	170	172	177	172	M	178	176	177	176	174															
20	171	174	171	174	170	171	178	176	180	181	181	177	188	192	186	186	189	179	179	181	184	179	188	186	180															
21	193	181	182	180	180	180	181	187	180	182	187	184	185	178	181	M	175	173	172	175	175	170	174	173	179															
22	171	167	163	163	162	165	169	165	172	171	174	174	170	174	173	181	180	183	176	174	176	166	166	163	171															
23	170	163	163	163	166	181	171	175	172	172	180	178	178	173	179	175	173	173	175	174	172	167	170	169	172															
24	172	165	167	170	172	178	172	175	173	174	178	177	177	175	175	174	174	172	172	171	168	170	171	171	173															
25	167	165	166	168	165	164	167	171	180	186	193	175	175	166	M	M	M	M	M	M	M	M	M	M	M															
26	M	169	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M															
27	163	166	163	163	163	163	168	172	168	173	172	171	171	175	170	174	176	177	177	169	167	169	166	168	171															
28	175	178	183	184	179	178	185	179	180	181	185	189	184	179	180	177	177	179	176	172	173	175	178	176	179															
29	179	174	173	176	172	170	177	178	174	178	182	181	181	181	185	183	182	180	177	183	167	180	172	178	178															
30	180	176	176	184	178	178	179	181	182	188	186	187	188	188	186	188	188	188	188	190	192	192	191	185	185															
31	189	187	186	185	183	184	184	187	188	188	200	190	192	191	187	188	187	189	186	179	174	170	169	169	184															
MEAN	176	175	174	175	174	175	177	177	175	181	183	182	182	181	181	182	181	181	179	178	176	177	177	176	178															
M = MISSING DATA																																								

M = MISSING DATA

*** SURFACE DATA				LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***		
STATION NO. 91490 CHRISTMAS														APR 1967										1009 MBS		
DAY	SPECIFIC HUMIDITY (G/KG IN TENTHS)																									
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
1	172	170	172	169	163	169	173	175	181	178	181	177	181	182	179	179	179	177	176	182	176	176	176	174	176	176
2	172	173	173	170	175	177	177	183	185	186	184	184	189	189	188	181	181	182	178	175	176	177	176	175	179	179
3	173	172	170	170	175	176	182	184	178	173	172	171	175	170	171	168	168	169	167	168	171	168	163	162	171	171
4	164	161	163	161	M	167	170	171	165	172	172	173	178	179	178	173	175	175	175	177	181	177	178	177	172	172
5	177	178	177	176	176	177	178	180	181	177	179	181	181	181	182	182	182	180	181	180	180	177	177	175	179	179
6	173	171	170	170	172	178	186	189	184	186	188	188	191	189	181	187	189	186	185	187	186	188	187	185	183	183
7	186	186	185	183	181	180	183	181	194	183	175	175	176	177	172	177	177	178	177	173	178	177	178	178	179	179
8	177	178	179	177	177	178	180	180	182	182	183	182	175	175	179	180	176	177	178	177	174	175	173	178	178	178
9	173	170	170	170	170	174	174	174	167	164	173	167	165	170	169	170	167	162	170	167	162	164	164	161	168	168
10	162	157	149	155	145	162	173	168	173	173	172	177	176	166	166	170	164	163	160	157	160	162	163	169	164	164
11	174	173	173	178	182	182	182	183	187	185	152	150	190	183	186	180	179	180	179	176	175	174	173	184	151	151
12	173	172	173	170	172	170	187	186	198	193	178	186	183	187	183	192	185	189	185	186	178	179	180	179	181	181
13	178	179	177	183	181	182	180	184	191	190	193	190	184	184	185	185	187	177	177	175	176	175	179	176	182	182
14	176	176	178	178	176	178	182	182	183	186	187	186	188	186	186	183	183	180	178	174	173	171	171	169	174	174
15	167	172	174	175	175	178	185	186	188	185	184	187	184	190	190	186	190	185	186	188	184	181	180	179	183	183
16	179	179	182	176	176	179	179	189	193	193	193	193	195	195	193	187	184	181	181	176	177	177	183	179	184	184
17	177	177	175	171	175	178	179	178	184	181	184	187	186	189	193	184	184	183	180	176	176	172	169	170	174	174
18	172	167	167	171	169	167	176	163	175	180	180	183	182	187	187	195	191	190	186	183	177	180	175	177	180	180
19	170	174	171	168	174	174	171	178	184	187	186	183	189	190	190	189	182	179	174	176	175	174	175	172	179	179
20	173	176	177	176	172	176	176	178	181	186	184	189	189	191	183	184	181	183	174	172	175	177	176	176	180	180
21	173	171	171	171	171	172	177	175	181	181	187	185	184	180	M	M	M	M	M	M	M	M	M	M	177	177
MEAN	173	173	173	172	173	175	178	180	182	182	183	183	183	183	181	182	180	179	177	176	175	175	175	175	178	178

M = MISSING DATA

*** SURFACE DATA				LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***	
STATION NO. 91490				CHRISTMAS										APR 1967										1009 MBS	
				RELATIVE HUMIDITY (PERCENT IN TENTHS)																					
DAY				LOCAL HOUR																					
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	844	835	836	827	802	835	821	829	827	815	823	815	816	813	790	794	808	815	830	862	837	845	837	845	825
2	836	840	836	832	845	857	861	843	847	859	821	813	818	833	811	801	809	847	830	825	837	873	865	856	840
3	848	844	835	839	881	881	890	851	815	795	787	769	774	758	752	744	768	783	796	812	813	819	802	802	813
4	814	809	821	817	M	827	816	809	779	795	777	770	783	769	772	766	774	781	829	845	862	857	873	869	809
5	869	873	869	857	861	861	853	842	862	831	822	815	831	827	816	816	854	862	850	866	862	862	857	853	845
6	848	836	839	835	848	873	912	896	855	848	837	840	834	868	798	814	844	851	871	827	879	891	895	895	858
7	912	903	903	903	902	826	895	878	871	866	822	799	769	800	780	811	837	830	865	844	869	861	869	873	857
8	873	881	856	869	873	873	882	869	854	854	847	835	807	753	812	831	829	841	869	861	852	848	840	836	851
9	844	831	835	827	832	844	845	856	789	759	788	768	754	755	754	755	764	765	820	819	795	814	826	817	802
10	841	792	851	897	899	508	848	797	817	806	791	771	740	694	687	741	752	745	747	732	761	765	795	827	792
11	844	844	848	869	899	899	874	847	856	810	808	790	841	781	803	783	794	831	846	849	853	844	848	903	840
12	846	840	836	828	840	828	804	847	856	861	775	803	804	814	798	819	806	852	863	843	842	857	885	886	841
13	902	894	869	895	874	874	854	871	845	856	853	841	817	813	810	810	840	811	837	849	857	852	861	837	851
14	837	861	866	861	845	869	854	839	839	840	818	789	811	796	789	809	862	823	793	814	817	809	809	801	825
15	796	844	852	856	860	869	891	819	841	792	781	772	750	759	759	748	749	806	867	879	871	886	870	878	827
16	846	850	890	861	869	878	878	864	857	837	812	805	809	809	809	793	788	831	831	830	841	841	842	849	843
17	865	869	860	869	860	865	861	826	832	809	824	818	796	811	781	795	813	824	850	849	849	840	827	835	835
18	844	811	811	836	827	815	849	851	794	793	797	809	795	772	772	835	826	845	855	863	837	850	822	845	823
19	820	856	836	823	860	837	809	815	813	818	796	791	800	797	797	804	805	794	802	830	825	825	829	821	817
20	840	857	869	861	844	849	830	815	809	817	818	800	793	805	802	821	805	832	810	813	829	845	845	849	828
21	844	844	844	868	868	864	873	814	805	798	779	751	740	759	M	M	M	M	M	M	M	M	M	M	818
MEAN	850	853	854	859	859	862	862	849	832	823	808	798	795	792	785	794	803	818	833	840	839	844	846	850	831

M = MISSING DATA

HOURLY OBSERVATIONS

MAR 1967

LINE ISLANDS EXPERIMENT

SURFACE DATA

STATION NO. 51490 CHRISTMAS (NE PCENT)

DAY	WIND DIRECTION (DEGREES)																							MEAN DIR SPO		
	LOCAL HOUR																									
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24	
8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	85168	
9	75	75	75	75	75	80	80	90	90	90	90	90	105	100	105	105	105	105	100	95	95	95	95	95	95	90168
10	45	100	100	100	105	105	105	105	105	105	105	105	105	105	105	105	105	105	100	95	95	95	90	90	101162	
11	90	90	90	80	90	90	95	90	90	90	100	100	100	90	90	90	90	90	85	80	90	85	85	85	90168	
12	80	80	80	75	75	85	85	75	75	75	80	90	90	90	90	90	90	90	90	90	90	85	85	80	84181	
13	90	90	90	85	90	85	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90197	
14	85	90	90	90	95	90	95	95	90	90	90	90	90	95	95	90	90	80	90	85	85	90	95	90	91154	
15	80	80	80	80	80	80	85	85	75	75	75	75	70	75	70	75	75	75	75	75	65	70	70	60	75127	
16	70	75	70	75	75	75	80	80	90	90	90	90	90	90	90	90	90	90	95	95	95	100	95	90	86121	
17	100	100	90	90	90	90	90	100	90	90	90	90	90	90	90	90	90	90	95	95	100	90	90	85	93156	
18	80	80	85	90	90	90	95	95	95	100	95	90	95	95	95	95	95	95	95	95	90	100	90	95	92173	
19	90	90	95	100	90	90	85	90	90	85	85	90	90	90	95	90	90	85	80	90	85	80	90	95	89153	
20	45	55	90	95	90	90	90	90	85	85	75	75	75	75	75	70	75	75	60	75	75	70	60	65	80104	
21	65	75	70	95	115	120	120	125	115	105	105	110	125	120	115	110	120	120	120	120	120	115	110	105	111114	
22	100	95	115	130	120	125	120	120	110	110	100	80	80	80	95	100	110	105	100	100	100	105	105	105	104142	
23	105	90	100	105	110	120	120	115	115	110	105	105	110	105	100	100	M	110	105	105	105	110	115	110	107158	
24	110	110	110	110	110	115	115	110	110	110	110	110	115	105	95	90	90	95	105	105	105	110	115	105	107119	
25	110	110	115	120	120	120	125	130	110	105	110	120	120	120	110	115	115	105	115	120	105	120	120	120	116125	
26	115	110	110	105	110	110	105	100	100	100	105	110	110	110	110	110	105	105	105	100	100	100	95	105139		
27	50	90	90	90	95	95	95	95	95	100	105	105	105	105	105	105	105	105	100	95	100	100	95	105	99120	
28	105	110	110	110	115	115	115	120	120	120	120	110	110	110	110	110	105	100	105	105	105	105	105	105	111135	
29	110	110	110	105	109	105	105	105	105	100	100	100	100	90	M	95	95	95	90	90	90	90	90	90	99146	
30	45	95	95	100	105	105	105	105	105	100	100	95	90	100	95	90	90	95	90	90	95	105	105	105	98131	
31	110	110	115	110	115	115	115	120	120	120	120	125	130	M	M	130	120	120	120	110	105	100	90	115145		
MEAN	93	93	95	96	97	99	99	100	99	98	97	97	98	97	96	98	97	97	96	96	95	96	94	93	96	
SPO	146	146	139	139	141	141	142	144	141	146	143	146	144	146	147	141	139	144	144	147	146	147	142	145	144	

M = MISSING DATA
C = CALM WIND

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (1/10 TENTHS).

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***		
STATION NO. 91490			CHRISTMAS (NE PCENT)										MAR 1967												
DAY	SCALAR WIND SPEED (MPH IN TENTHS)																								
	LOCAL HOUR																								
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
8	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
9	190	190	191	179	170	170	178	164	171	180	173	178	170	180	170	163	155	164	168	158	162	166	160	165	191
10	167	161	165	174	173	174	174	172	160	180	170	165	175	170	164	147	140	150	155	151	158	156	146	155	163
11	148	154	175	182	177	180	177	175	160	170	170	165	185	187	190	165	155	165	165	155	153	170	153	172	169
12	185	183	174	166	177	167	172	150	185	190	185	200	193	195	189	180	176	170	170	198	187	175	176	187	182
13	187	188	182	190	184	187	198	200	210	225	232	233	237	228	232	194	186	190	200	183	187	172	163	172	198
14	173	165	160	170	175	175	185	195	190	180	162	148	156	147	147	138	129	148	140	136	132	123	109	122	154
15	135	145	132	128	125	125	133	124	134	132	128	137	131	118	124	123	123	123	119	126	130	135	110	110	120
16	122	115	107	107	113	115	108	109	115	118	121	134	122	121	127	118	121	134	128	132	137	143	140	150	123
17	152	148	150	141	155	162	157	160	150	141	149	145	170	159	155	157	171	170	169	167	167	157	148	162	157
18	169	152	170	187	177	158	158	160	161	184	176	157	183	172	168	176	166	178	193	183	181	183	177	177	174
19	187	182	168	175	171	181	168	180	170	180	172	165	145	143	132	128	135	143	123	139	128	125	128	130	154
20	129	130	118	118	123	128	116	100	107	103	92	95	98	104	103	95	95	95	80	117	91	108	108	93	106
21	101	134	77	68	104	60	49	93	81	90	63	95	90	102	108	140	142	14	157	167	165	200	157	163	114
22	160	146	164	157	137	131	140	137	133	122	104	130	144	164	152	140	148	135	151	154	155	157	163	170	146
23	171	180	160	160	169	146	146	130	133	146	153	157	160	163	174	171	M	176	179	180	159	151	155	158	160
24	161	146	130	123	127	120	109	120	113	117	113	113	120	127	115	105	98	107	120	131	129	117	113	122	121
25	125	121	116	121	120	111	94	100	112	105	110	117	106	116	124	130	132	138	153	159	138	159	171	142	126
26	129	130	124	128	132	134	133	132	120	119	131	137	140	144	146	150	167	182	147	167	153	147	155	144	140
27	126	113	103	105	96	113	135	140	141	145	132	126	119	118	111	120	125	117	107	122	128	133	114	110	121
28	120	115	120	120	127	128	143	150	151	163	168	163	161	136	138	133	135	127	115	124	130	134	144	134	137
29	134	132	140	134	132	154	163	173	168	170	180	170	151	145	M	149	137	134	133	132	132	140	150	142	148
30	137	150	138	136	141	145	140	155	135	142	141	132	128	130	132	124	121	120	130	120	124	111	119	117	132
31	129	146	133	131	148	151	139	145	128	115	112	123	119	M	M	141	145	159	160	173	185	182	190	187	147
MEAN	144	149	143	144	146	146	146	149	145	149	146	149	148	149	149	144	142	141	148	150	149	151	146	149	147

M = MISSING DATA

*** SURFACE DATA ***

LINE ISLANDS EXPERIMENT

STATION NO. 91490 CHRISTMAS (NE POINT)

WIND DIRECTION (DEGREES)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	100	100	105	110	100	95	90	90	90	90	90	90	85	75	80	85	85	100	105	110	115	110	110	100	96138
2	100	100	100	95	100	110	100	95	90	100	100	100	85	75	80	85	85	100	100	105	110	115	110	100	97114
3	120	125	135	200	200	180	140	155	145	125	115	105	105	105	105	105	105	105	105	100	100	100	90	90	111 90
4	90	90	90	90	95	100	100	90	95	95	95	90	M	M	M	105	105	110	105	100	105	100	95	100	98129
5	95	105	105	105	110	115	110	100	110	105	105	100	95	100	90	90	95	95	M	85	85	85	95	95	98146
6	50	55	100	110	120	M	105	105	M	105	100	M	M	90	55	90	55	M	90	95	100	95	100	105	99127
7	110	115	120	120	115	120	125	125	120	115	M	M	110	110	110	110	110	115	120	120	115	110	120	120	116135
8	110	105	105	100	105	115	110	110	110	110	110	110	115	120	120	120	115	110	105	105	105	100	105	100	109149
9	105	105	105	100	100	105	110	105	115	115	115	105	110	115	120	110	105	105	105	110	115	120	130	130	109121
10	140	150	M	M	M	105	110	120	115	115	115	110	100	85	55	35	55	60	75	65	100	115	105	105	101 58
11	100	90	80	80	80	100	120	115	105	120	115	100	100	95	100	100	105	115	115	100	85	85	80	90	99 77
12	100	105	100	105	105	95	100	90	85	100	95	100	100	100	95	90	90	85	85	90	90	100	105	105	9106
13	105	105	105	100	90	90	100	100	90	110	120	120	110	110	105	105	105	105	105	105	105	105	100	95	104119
14	85	95	100	110	105	100	95	85	80	75	80	90	100	105	100	105	105	105	105	85	65	75	80	90	92 94
15	95	80	80	90	95	95	90	95	105	95	90	95	85	80	85	80	80	80	90	90	95	115	105	100	91 54
16	95	110	110	125	125	115	115	115	115	115	110	115	115	115	110	110	105	105	105	100	100	95	95	105	110 69
17	110	115	125	125	125	120	120	110	110	110	110	105	95	90	85	80	75	80	85	90	85	85	75	75	98 84
18	80	65	70	75	60	105	90	85	75	75	80	85	85	100	90	90	80	80	80	85	95	90	90	90	83103
19	95	95	100	100	95	100	100	90	90	95	100	95	105	105	110	110	110	105	100	100	105	105	100	100	100149
20	105	105	105	100	100	100	105	105	105	105	110	105	105	105	105	105	100	95	M	M	M	M	M	M	103117
MEAN	101	101	102	103	104	106	106	102	102	104	103	101	101	100	99	99	98	98	98	98	99	100	99	100	101
DIR	101	104	105	104	103	97	99	104	113	120	116	117	116	116	111	106	107	108	109	107	105	107	108	103	108

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***			
STATION NO. 51450			CHRISTMAS (NE POINT)										APR 1967													
			SCALAR WIND SPEED (MPH IN TENTHS)																							
			LOCAL HOUR																							
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
1	173	166	173	163	168	162	157	155	165	157	139	130	128	123	106	101	118	119	110	115	122	136	159	134	141	
2	146	143	127	110	99	107	114	116	127	127	121	126	137	125	121	117	111	120	120	115	100	104	96	68	116	
3	67	53	21	3	24	42	50	55	85	127	130	125	125	125	127	121	123	119	123	124	133	136	133	136	96	
4	123	111	115	102	107	126	140	133	133	128	126	126	M	M	128	131	129	143	139	132	147	145	158	130		
5	155	137	158	145	145	133	144	142	178	175	162	156	152	154	150	166	146	146	M	140	143	137	130	123	148	
6	112	108	113	114	137	M	130	139	M	135	118	M	M	126	124	125	147	M	200	135	131	114	116	117	128	
7	126	130	124	144	136	141	133	139	157	157	M	M	140	147	163	137	127	125	115	122	125	133	135	144	136	
8	142	129	135	154	159	139	147	150	157	154	150	159	151	147	145	151	147	143	161	156	152	150	163	177	151	
9	174	174	183	177	170	152	111	103	114	141	139	161	138	119	97	88	90	100	93	94	80	75	85	78	122	
10	73	43	M	M	M	25	56	80	84	88	89	81	52	42	38	46	49	61	57	38	19	36	45	59	55	
11	40	44	50	60	48	37	45	62	94	100	98	98	110	137	129	126	104	75	58	57	77	87	98	73	79	
12	75	63	73	73	81	92	98	119	137	140	144	134	132	132	132	112	116	108	115	113	105	97	84	89	108	
13	113	120	106	91	111	109	97	94	99	110	123	136	151	147	137	135	135	141	125	134	126	130	119	104	121	
14	107	90	82	76	92	89	92	92	87	106	94	111	130	129	110	119	113	107	103	85	76	67	67	86	96	
15	73	68	66	64	57	59	53	63	72	66	69	56	48	53	54	40	37	46	52	51	47	53	50	35	56	
16	35	45	51	64	61	62	58	79	80	80	90	92	81	77	80	73	55	69	63	67	71	74	89	79	70	
17	82	78	89	92	94	87	64	62	84	91	67	75	76	79	75	82	88	113	112	107	114	110	104	90	89	
18	103	142	109	123	55	40	55	68	80	91	99	99	94	113	98	103	123	130	123	139	133	127	130	133	105	
19	141	161	169	159	151	155	165	161	165	163	162	160	151	154	149	131	124	137	133	136	140	155	145	136	150	
20	123	115	102	110	130	148	129	127	120	115	112	106	120	119	108	108	109	M	M	M	M	M	M	M	118	
MEAN	109	107	108	107	107	100	102	107	117	123	119	118	118	118	114	110	111	111	111	108	107	109	110	105	111	
M = MISSING DATA																										

M = MISSING DATA

HOURLY OBSERVATIONS

MAR 1967

LINE ISLANDS EXPERIMENT

CHRISTMAS (LONDON SITE)

SURFACE DATA

STATION NO. 91490

WIND DIRECTION (DEGREES)

DAY	LOCAL HOUR																								MEAN DIR SPD
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
14	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	97117
15	50	90	90	95	95	100	95	90	75	75	75	75	75	75	75	75	75	80	80	70	85	85	75	70	81119
16	75	80	80	90	90	90	90	100	100	110	110	110	110	100	110	110	110	110	105	105	105	110	105	105	102115
17	105	105	105	95	95	95	105	100	105	105	105	105	105	100	105	105	105	105	105	105	105	110	100	100	103153
18	100	100	105	105	105	115	110	105	105	110	105	110	105	105	105	105	110	105	105	105	105	105	105	105	106175
19	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100149
20	105	100	100	95	90	90	90	100	80	80	70	75	75	80	65	65	70	M	75	70	75	75	75	75	81104
21	80	75	85	100	115	125	135	135	140	120	110	120	125	135	155	125	110	115	130	135	130	130	130	120	122112
22	110	120	130	140	135	140	125	135	130	120	110	95	100	100	115	110	115	110	110	110	115	115	120	120	117145
23	110	105	110	120	120	130	135	130	120	115	120	115	115	110	110	110	105	105	105	105	110	115	115	115	113158
24	110	115	110	115	105	110	115	105	110	110	115	115	115	110	105	110	80	75	75	95	105	110	110	100	105118
25	110	115	115	125	120	120	120	120	115	120	120	120	120	120	110	110	110	110	110	115	120	120	M	116123	
26	115	115	115	115	105	110	102	100	100	105	110	110	110	110	110	110	110	110	105	105	105	100	100	100	107141
27	85	95	95	95	95	95	95	90	90	100	105	110	115	115	115	115	115	115	105	90	100	90	100	100	102114
28	105	105	105	110	105	115	115	115	115	120	115	110	110	110	110	110	110	110	110	105	105	105	105	105	110136
29	105	105	105	100	105	105	105	100	100	100	100	100	100	85	85	80	90	95	90	85	90	90	90	90	96145
30	95	95	95	100	100	105	100	105	105	100	100	100	85	85	100	95	85	95	100	95	90	95	105	100	97131
31	105	115	105	120	110	120	120	120	120	110	120	120	120	120	120	120	120	120	120	125	120	115	110	100	117148
MEAN	101	103	104	108	106	110	109	105	106	105	105	105	105	103	106	103	103	103	102	102	103	106	105	102	105
DIR	131	126	124	118	118	120	116	118	126	116	141	145	143	144	140	145	145	144	138	132	131	136	133	132	133

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***			
STATION NO. 51490			CHRISTMAS (LONGCCN STFI)												MAR 1967															
			SCALAR WIND SPEED (MPH IN TENTHS)																											
DAY				LOCAL HOUR																										
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	MEAN					
14	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	118	109				
15	123	122	110	101	101	97	102	102	125	134	147	142	126	136	131	135	127	123	127	117	114	112	115	110	120					
16	101	93	84	89	89	96	96	89	98	114	121	131	130	140	132	137	134	138	124	125	131	137	138	143	117					
17	147	136	148	134	142	145	133	148	140	144	147	164	170	165	157	174	182	170	169	166	157	154	140	155	154					
18	154	147	148	171	167	150	145	147	154	185	191	202	201	201	190	190	196	194	194	178	179	179	185	180	176					
19	177	159	155	158	161	150	145	145	177	181	175	165	159	158	150	151	155	151	139	126	109	108	122	124	150					
20	126	117	117	106	103	101	91	90	101	105	100	107	123	114	122	126	112	M	102	99	94	109	95	105	107					
21	19	110	88	63	71	119	97	56	85	54	101	85	94	117	137	139	142	154	173	160	191	163	149	118	118					
22	14	149	163	160	123	142	133	133	121	124	120	144	155	174	149	163	152	149	161	149	153	169	168	165	149					
23	73	174	146	147	145	123	127	117	135	160	173	168	173	170	172	173	175	187	179	169	150	155	156	160	160					
24	159	134	124	114	114	104	104	102	111	121	126	132	131	139	119	112	110	112	117	125	133	119	117	113	121					
25	115	117	111	111	115	108	91	95	107	114	117	129	122	115	126	130	138	143	137	146	172	170	M	125	125					
26	144	133	124	122	131	125	128	123	127	135	152	145	147	155	162	161	171	172	150	148	148	138	145	130	142					
27	108	56	91	91	92	89	103	117	135	144	149	150	134	150	136	137	120	113	106	102	112	120	108	107	117					
28	116	113	117	118	115	125	134	147	151	165	172	178	162	153	150	140	147	125	113	117	120	133	143	137	137					
29	133	136	135	123	126	139	149	163	176	179	191	185	172	154	169	166	150	149	133	113	110	119	124	126	147					
30	127	128	136	122	128	135	109	124	141	160	162	146	147	155	147	144	145	134	134	131	107	110	106	107	133					
31	106	124	135	124	126	146	142	122	130	117	128	133	147	145	163	177	182	168	168	169	176	180	182	178	149					
MEAN	133	129	127	121	120	123	119	122	131	139	145	149	147	148	147	150	149	147	142	137	135	139	136	135	136					
M = MISSING DATA																														

M = MISSING DATA

*** SURFACE DATA ***
 STATION NO. 5149C CHRISTMAS (LINDEN SITE)
 LINE ISLANDS EXPERIMENT
 HOURLY OBSERVATIONS
 APR 1967

DAY	WIND DIRECTION (DEGREES)																								MEAN DIRSPD	
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1	100	100	105	110	105	100	90	90	100	85	75	75	75	75	75	100	105	105	100	105	105	110	115	100	97135	
2	90	100	100	95	95	100	100	90	95	110	110	115	110	105	105	105	110	110	110	105	105	100	95	100	103110	
3	120	145	140	175	180	170	160	160	135	110	105	105	110	105	105	110	110	105	105	95	95	90	90	90	103190	
4	90	95	90	90	100	105	90	95	100	100	105	90	95	70	100	110	110	105	105	100	100	100	95	90	97123	
5	95	100	105	105	110	105	110	100	110	100	105	105	105	105	95	75	80	90	90	90	85	85	90	90	98141	
6	100	90	90	95	105	115	105	100	100	105	105	95	80	70	85	75	90	90	90	85	80	90	100	95	93126	
7	100	110	120	120	125	120	120	130	120	115	115	115	110	110	120	115	110	115	120	120	120	110	120	120	110	110138
8	115	110	115	105	110	120	115	115	110	105	115	120	120	120	120	115	110	110	110	110	105	105	110	105	110	110150
9	105	105	105	105	105	110	110	110	105	110	115	110	115	110	130	280	300	180	70	230	280	170	130	110	130	39
10	150	165	220	210	150	115	120	135	125	115	105	105	105	110	130	280	300	180	70	230	280	170	130	110	130	39
11	100	95	60	80	85	65	95	120	115	120	110	95	90	95	100	110	110	115	115	105	80	80	85	85	85	80
12	90	100	100	95	105	100	105	90	85	100	110	105	110	110	105	70	85	80	75	80	75	85	100	105	95108	
13	105	110	105	105	100	95	90	100	100	110	115	110	110	105	110	105	105	105	110	110	105	100	100	100	100	96108
14	85	90	105	115	110	105	95	90	70	70	80	110	105	105	100	105	105	110	100	80	70	75	85	90	90	105127
15	65	80	80	80	90	95	90	100	105	115	110	110	85	70	70	70	65	60	70	75	85	80	95	90	90	96101
16	100	110	110	140	135	130	130	130	125	120	115	115	120	120	120	120	115	115	110	95	80	85	95	105	115	74
17	115	120	125	130	135	130	135	125	125	115	115	120	105	85	60	60	60	65	80	85	90	90	80	65	90	83
18	75	80	55	70	85	95	110	90	70	60	65	70	75	90	75	65	70	75	75	85	90	90	90	90	90	79 99
19	90	95	100	100	100	95	95	100	100	105	105	110	115	110	105	105	105	105	110	110	110	110	110	110	110	102150
MEAN	100	103	102	106	109	105	107	107	103	106	105	104	103	101	99	98	96	99	97	99	95	97	101	96	102	
DIR	98	98	92	92	92	91	91	93	111	127	130	131	129	129	119	112	110	108	109	99	97	100	100	96	106	
SPD																										

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***			
STATION NO. 51490			CHRISTMAS (LOADEN SITE)										APR 1967													
			SCALAR WIND SPEED (MPH IN TENTHS)																							
DAY			LOCAL HOUR																							
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
1	153	156	163	160	150	131	129	125	155	172	156	163	166	135	104	112	136	125	109	120	112	134	148	133	139	
2	110	118	115	105	82	80	90	93	120	127	132	134	163	136	130	122	133	118	122	113	105	90	81	71	111	
3	60	36	49	50	57	73	75	75	113	129	110	125	133	137	137	128	124	117	127	122	126	119	116	113	100	
4	101	99	91	92	91	101	116	117	137	136	135	128	132	142	139	138	136	141	144	135	143	142	128	132	125	
5	135	129	131	130	133	128	144	136	159	174	175	161	160	160	152	162	158	143	151	143	122	130	120	111	144	
6	115	97	95	94	126	132	129	133	150	148	139	136	144	M	160	140	149	139	136	123	118	124	116	111	128	
7	113	130	122	121	133	135	132	139	154	170	170	163	158	147	152	139	139	135	127	124	131	143	132	131	139	
8	139	129	133	136	144	130	136	149	151	153	175	171	162	156	153	159	151	150	154	155	151	153	157	168	151	
9	161	159	160	160	151	129	107	93	101	133	137	153	146	140	114	108	104	99	101	95	88	83	68	91	121	
10	79	61	34	26	21	41	54	64	66	116	115	116	97	98	47	64	70	55	61	36	27	31	60	43	62	
11	44	42	47	34	42	44	33	53	99	107	111	121	138	139	148	147	126	85	72	66	71	82	79	75	84	
12	72	84	77	78	75	85	84	99	132	155	154	166	147	156	132	129	122	121	110	93	100	97	102	100	111	
13	130	127	100	99	91	91	91	104	110	145	149	157	166	171	159	148	153	144	131	135	127	119	122	110	128	
14	95	89	80	92	91	86	75	66	94	125	120	147	160	156	156	158	132	114	105	85	74	69	67	76	105	
15	91	74	64	67	61	57	56	59	81	77	50	88	73	84	100	85	80	71	60	62	54	57	50	46	70	
16	48	58	50	66	74	68	60	75	80	89	96	102	88	102	93	95	80	82	79	63	70	63	82	81	77	
17	83	86	94	100	99	96	80	70	84	84	81	81	81	90	93	100	100	105	115	99	103	106	99	87	93	
18	79	111	128	115	73	73	64	59	62	86	57	103	94	110	118	123	126	127	126	110	121	113	107	110	101	
19	121	140	155	156	147	137	145	150	157	156	163	156	161	160	152	M	M	M	M	M	M	M	M	M	152	
MEAN	101	101	99	99	97	96	95	98	115	130	133	135	133	134	128	125	123	115	113	104	102	103	103	99	112	
M = MISSING DATA C = CALM WIND																										

M = MISSING DATA
C = CALM WIND

HOURLY OBSERVATIONS

MAR 1967

LINE ISLANDS EXPERIMENT

SURFACE DATA

STATION NO. 91490

CHRISTMAS (NEW CAMP)

WIND DIRECTION (DEGREES)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN DIRSPD
	LOCAL HOUR																								
	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
1	60	60	60	60	65	65	70	75	75	75	80	85	85	90	90	85	90	90	90	95	100	110	110	90	71 56
2	110	110	110	110	110	110	110	110	110	115	115	115	115	120	105	95	85	90	105	105	110	110	110	90	81 61
3	50	55	90	85	85	90	100	95	85	75	90	85	85	85	85	85	85	75	75	80	90	80	80	85	65 62
4	12	80	85	80	80	75	75	75	75	75	75	75	75	80	80	85	90	90	90	95	95	100	100	100	83 65
5	13	95	105	100	105	100	100	100	100	100	100	100	100	100	100	100	100	95	90	95	90	95	90	85	95 67
6	14	85	90	95	100	105	105	100	100	95	90	80	80	80	80	80	80	80	85	90	85	95	105	100	84 51
7	15	95	90	80	80	90	90	95	75	80	75	70	70	70	65	60	55	60	60	60	70	70	65	60	71 44
8	16	60	60	65	65	70	70	75	80	85	90	85	80	75	70	75	80	80	85	90	95	105	100	100	81 41
9	17	105	95	100	100	90	100	100	95	90	80	75	70	80	80	75	85	85	95	100	100	105	105	100	88 48
10	18	100	105	110	105	105	100	100	95	100	95	90	85	80	85	80	80	80	90	100	105	100	105	105	93 57
11	19	100	100	100	105	100	95	90	90	85	85	85	85	80	75	75	75	75	75	80	85	80	85	95	85 51
12	20	105	105	100	95	95	90	90	80	85	85	85	80	60	60	55	60	65	70	60	60	60	60	60	69 33
13	21	65	65	70	90	M	135	135	130	130	95	60	90	85	110	105	110	120	125	130	125	120	105	108 33	
14	22	105	100	125	135	125	140	115	125	120	120	85	70	75	70	70	85	110	100	95	100	100	105	110	98 43
15	23	55	95	100	105	110	115	115	120	115	110	105	105	100	90	90	95	95	95	M	M	M	M	M	101 54
MEAN	89	89	92	96	94	96	95	95	94	96	89	84	84	83	82	79	83	85	88	92	95	96	92	91	82
DIR	38	39	36	34	37	34	32	35	52	63	69	71	75	77	74	73	67	61	53	45	40	39	39	37	51
SPD																									

M = MISSING DATA

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

*** SURFACE DATA

STATION NO. 91490 CHRISTMAS (NEE CAMP)

LINE ISLANDS EXPERIMENT

HOURLY OBSERVATIONS

MAR 1967

SCALAR WIND SPEED (MPH IN TENTHS)

DAY	LOCAL HOUR																							
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
6	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
5	65	66	65	53	50	58	55	56	55	54	85	83	90	85	89	82	68	64	60	48	38	42	46	41
10	42	36	35	45	44	38	38	40	57	75	79	76	80	82	71	68	64	66	58	45	37	37	34	38
11	35	45	50	53	58	47	52	50	61	69	62	75	85	100	90	91	74	71	60	54	46	48	58	49
12	59	58	55	54	53	54	51	55	69	67	77	83	83	96	92	88	86	88	61	58	59	52	54	51
13	43	45	42	47	45	43	49	59	70	89	105	87	110	90	100	96	88	76	75	64	51	60	57	53
14	54	50	35	35	38	41	49	48	68	80	74	74	78	83	68	73	63	65	54	39	41	26	14	11
15	30	41	40	30	21	21	14	26	47	61	69	69	71	69	70	62	60	56	42	41	31	37	35	35
16	30	23	24	15	21	16	25	22	42	58	62	62	67	68	65	66	60	61	44	33	39	28	37	30
17	34	34	28	27	40	41	35	31	48	61	55	64	81	83	74	71	81	72	50	49	43	36	29	31
18	46	35	21	45	45	36	22	30	58	73	81	86	87	89	83	82	84	72	71	58	50	45	47	50
19	54	47	22	35	40	46	46	48	68	76	73	76	76	77	70	67	63	61	52	43	36	23	29	21
20	13	15	21	14	28	18	15	26	42	46	57	53	60	69	59	59	51	36	31	20	23	23	26	25
21	24	28	23	1	1	10	1	1	39	46	42	54	39	29	62	53	43	39	46	55	49	60	51	43
22	27	31	49	57	11	21	18	30	45	57	55	64	68	82	64	70	66	61	50	37	25	32	41	38
23	35	45	29	24	30	32	29	27	50	67	71	84	80	76	80	80	71	69	61	M	M	M	M	M
MEAN	39	40	37	36	35	35	33	37	55	66	71	73	77	79	76	74	68	62	55	46	41	40	41	39

M = MISSING DATA

*** SURFACE DATA ***
 LINE ISLANDS EXPERIMENT
 STATION AC. 5149C CHRISTMAS (SEE POINT)

HOURLY OBSERVATIONS
 MAR 1967

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	DIRSPD
24	100	100	105	105	105	105	110	110	110	105	105	105	105	105	95	95	95	95	95	95	100	100	100	100	91 99
25	100	100	105	105	105	105	110	110	110	105	105	105	105	105	95	95	95	95	95	95	100	100	100	100	101101
26	100	95	100	100	95	95	90	90	90	90	95	100	100	100	105	100	100	100	100	95	95	95	90	90	96115
27	80	80	75	75	80	85	80	80	80	80	95	100	100	100	95	100	90	80	85	90	90	90	90	95	88104
28	105	100	105	105	100	105	100	105	110	105	110	105	100	100	105	105	95	95	100	90	95	95	90	90	100112
29	105	100	95	95	85	90	90	90	90	90	90	90	85	80	85	85	90	85	85	80	80	85	90	90	901137
30	90	85	90	95	90	95	95	90	90	95	90	85	85	85	90	85	90	85	75	80	85	90	90	90	88119
31	100	105	105	105	105	105	105	110	115	115	115	110	125	120	120	120	120	110	110	105	100	100	100	90	108119
MEAN	96	95	96	97	94	97	95	94	95	98	99	99	98	97	97	95	96	94	93	91	94	95	95	93	95
SPD	108	104	107	108	109	112	113	115	115	114	117	114	111	111	115	115	119	117	115	119	124	118	120	117	114

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA

SURFACE DATA

LINE ISLANDS EXPERIMENT

CHRISTMAS (SE POINT)

MAR 1967

MAR 1967

SCALAR WIND SPEED (MPH IN TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
24	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
25	120	105	101	101	91	85	75	72	83	82	94	86	89	96	109	115	125	124	130	115	112	109	105	102	
26	102	101	108	109	104	104	112	112	108	103	106	107	105	110	124	127	139	134	128	139	122	139	118	116	
27	118	102	98	97	92	105	118	131	126	123	103	99	97	104	102	94	106	93	97	112	115	110	94	90	105
28	84	80	80	95	104	104	116	123	120	129	138	135	130	125	118	117	120	109	100	108	110	124	121	115	113
29	101	106	128	124	122	139	141	154	161	151	165	165	153	139	141	147	138	136	132	131	140	134	138	137	138
30	121	126	127	127	132	130	132	112	124	123	130	111	124	117	121	125	115	110	120	105	127	108	109	111	120
31	120	114	116	115	128	125	105	112	89	96	55	102	95	101	113	112	130	134	133	140	157	142	163	168	121
MEAN	109	105	108	110	110	113	114	117	116	115	119	115	113	113	117	118	121	118	117	120	125	119	120	118	116

M = MISSING DATA

*** SURFACE DATA		LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS												***		
STATION NO. 91490		CHRISTMAS (SE POINT)										APR 1967														
		WIND DIRECTION (DEGREES)																								
		LOCAL HOUR																								
DAY		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	90	90	105	95	90	90	85	80	80	75	75	75	75	75	80	75	80	75	80	80	90	100	100	90	90	85125
2	90	90	90	90	95	100	90	90	95	90	90	100	100	100	100	100	100	100	95	95	90	100	100	105	100	95 96
3	105	105	155	160	165	C	165	125	115	115	115	105	100	95	90	90	95	100	95	85	85	90	85	80	90	96 77
4	80	80	75	80	80	80	85	90	90	90	90	90	90	85	85	95	95	105	105	100	90	90	90	90	90	89113
5	90	90	90	100	100	100	100	100	95	90	90	90	85	85	90	90	90	85	80	75	75	80	80	90	90	85125
6	65	25	95	105	105	105	100	95	90	90	90	90	85	85	85	85	85	85	85	85	85	85	85	85	85	91101
MEAN																										
DIR		89	88	92	96	94	96	93	94	93	91	89	87	88	87	89	91	92	90	87	85	91	90	89	89	90
SPD		110	108	99	95	89	89	91	108	114	116	116	117	114	110	107	107	109	104	109	109	110	114	112	111	107

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA
C = CALM WIND

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***		
STATION NO. 91490			CHRISTMAS (SE POINT)										APR 1967												
			SCALAK WIND SPEED (MPH IN TENTHS)																						
DAY			LOCAL HOUR																						
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	159	166	142	140	145	142	139	159	145	146	148	135	119	103	97	93	108	101	97	94	105	116	120	130	127
2	124	117	111	96	89	89	96	102	101	105	145	110	111	105	100	92	93	98	96	89	81	80	59	54	96
3	41	25	7	23	7	C	16	74	85	95	99	108	104	111	104	112	108	95	110	115	120	127	128	121	81
4	111	113	112	110	107	107	111	112	116	110	115	114	106	112	108	110	106	104	114	114	125	130	135	142	114
5	136	122	134	123	106	105	105	121	121	130	137	132	142	126	134	127	139	130	135	132	122	124	122	109	127
6	90	96	102	100	93	95	95	99	112	108	100	110	110	109	105	114	M	M	M	M	M	M	M	M	102
MEAN	110	108	101	95	91	90	94	111	116	117	119	118	115	111	108	108	111	106	110	109	111	115	113	111	108

M = MISSING DATA
C = CALM WIND

*** SURFACE DATA

LINE ISLANDS EXPERIMENT

WASHINGTON ISLAND

SURFACE DATA

JANUARY - JUNE 1967

MONTHLY RAINFALL (INCHES)

JANUARY	5.50
FEBRUARY	10.26
MARCH	13.39
APRIL	4.87
MAY	9.92
JUNE	9.41

TOTAL RAINFALL THROUGH 31 OCTOBER 1967: 80.13, AS COMPARED WITH 45.07 FOR FANNING ISLAND

(This information courtesy of Fanning Island Plantations, Ltd.)

LINE ISLANDS EXPERIMENT
HOURLY OBSERVATIONS

FEB 1967

POSITION
SHIP SURVEY

STATISTICAL NOTES

LATITUDE (DEGREES & TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
16	50	50	50	54	59	59	59	50	54	54	54	58	59	59	76	74	73	70	69	66	64	61	60	59
17	50	50	50	54	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
18	50	50	50	54	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
19	50	50	50	54	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
20	54	54	50	50	50	50	59	59	59	59	59	59	59	59	59	59	59	59	59	60	60	60	60	60
21	40	58	58	56	55	53	53	53	51	50	49	48	47	46	47	47	48	48	48	47	46	45	43	43
22	42	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
23	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
24	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
25	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
26	13	13	10	8	7	6	5	4	2	1	0	-1	-2	-4	-5	-6	-7	-10	-11	-13	-15	-16	-18	-19
27	-20	-22	-23	-26	-27	-28	-30	-30	-30	-30	-30	-30	-30	-29	-28	-25	-23	-20	-19	-18	-15	-13	-10	-7
28	-5	-3	-3	-4	-5	-6	-6	-6	-12	-14	-15	-14	-13	-10	-9	-6	-5	-3	-1	0	1	3	4	5

NEGATIVE SIGN = SOUTH LATITUDE

***			LINE ISLANDS EXPERIMENT										FOURLY OBSERVATIONS										***	
STATION NO. QNTES			SHIP SURVEYOR										MAR 1967											
			LATITUDE (DEGREES & MINUTES)										LOCAL HOUR											
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	8	9	10	11	13	15	17	18	18	19	19	19	19	18	19	19	19	20	20	25	28	30	32	35
2	37	39	42	44	46	49	52	53	54	57	60	62	63	65	65	65	65	67	70	72	75	77	79	
3	81	83	86	88	90	91	93	94	98	100	101	104	108	111	113	115	118	120	122	125	128	130	132	134
4	137	139	141	144	146	148	151	154	157	159	162	164	166	168	171	173	175	177	180	182	184	187	189	191
5																								
6																								
7																								
8																								
9																								
10																								
11	135	133	130	128	126	124	122	119	117	114	111	108	106	104	101	98	96	94	92	88	86	84	82	79
12	77	75	73	70	68	66	65	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
13	63	63	63	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
14	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
15	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
16	65	65	65	65	64	64	64	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
17	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
18	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
19	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
20	65	65	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	64	64	64	64
21	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
22	64	64	64	64	64	64	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	64
23	65	65	65	65	65	65	65	65	64	64	64	64	64	64	64	64	64	64	64	65	65	65	65	65
24	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
25																								
26	53	51	49	47	45	43	41	39	35	39	39	39	39	39	39	35	29	42	43	44	45	47	49	50
27	51	53	54	55	56	57	58	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
28	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
29	90	93	96	98	99	101	104	106	108	111	112	114	116	119	123	126	129	131	133	134	137	139	141	144
30	146	148	151	153	156	158	160	164	166	168	168	168	168	168	168	168	168	168	168	168	168	168	168	168

NEGATIVE SIGN = SOUTH LATITUDE

SURFACE DATA
STATION NO. 9NTES

LINE ISLANDS EXPERIMENT

SHIP SURVEYOR

HOURLY OBSERVATIONS

FEB 1967

DAY	TOTAL CLOUD COVER (TENTHS)																									
	01	02	03	04	05	06	07	08	09	10	11	LOCAL HOUR				15	16	17	18	19	20	21	22	23	24	MEAN
16	M	M	M	M	M	M	M	8	8	8	8	8	6	4	5	3	2	2	4	6	M	M	M	M	4	5
17	4	5	6	2	2	7	8	8	7	8	7	7	7	8	8	8	6	5	5	3	4	M	5	8	M	6
18	M	M	M	M	M	5	7	5	6	5	5	4	4	3	3	8	M	M	M	3	4	4	4	5	M	4
19	M	M	M	M	15	7	13	7	7	7	7	M	M	M	M	M	M	M	2	5	5	M	M	M	M	6
20	M	M	M	5	9	6	8	7	8	8	8	9	8	8	8	7	7	8	8	8	8	8	8	8	8	8
21	6	7	6	7	2	1	3	6	6	6	6	1	4	3	7	6	M	M	M	6	6	7	8	7	7	5
22	7	8	8	7	4	6	6	4	M	M	M	1	1	1	1	2	7	8	6	3	1	M	M	M	M	5
23	M	M	M	M	M	M	8	8	3	3	4	6	6	6	M	M	M	M	6	8	M	M	M	M	M	5
24	M	M	M	M	M	M	M	3	3	4	4	4	5	4	5	3	7	8	8	4	8	6	6	8	8	6
25	7	8	8	6	5	5	3	4	2	6	1	2	6	6	7	6	6	6	7	M	M	M	M	M	M	5
26	8	9	7	7	6	6	3	1	1	1	1	1	1	1	1	1	3	4	6	3	3	2	2	2	2	3
27	6	4	3	M	M	M	4	5	6	6	8	8	6	4	3	1	2	2	4	1	1	1	1	1	1	4
28	0	1	7	7	3	3	2	2	2	3	1	0	0	1	1	1	0	0	3	1	1	1	1	1	1	2
MEAN	5	6	6	5	4	5	6	5	5	5	5	5	5	4	4	4	4	5	5	4	4	4	4	5	5	5

M = MISSING DATA

*** SURFACE DATA ***				SHIP SURVEYOR				HOURLY OBSERVATIONS ***												MAR 1967						
STATION NO. DATES								TOTAL CLOUD COVER (TENTHS)																		
DAY	01	02	03	04	05	06	07	08	09	10	11	LOCAL HOUR			14	15	16	17	18	19	20	21	22	23	24	MEAN
												12	13	14												
1	0	4	8	6	7	7	7	6	5	4	2	2	5	5	4	4	1	1	2	1	3	4	3	1	4	
2	4	8	6	3	8	7	6	8	8	8	8	8	8	8	8	8	8	7	3	3	7	3	2	0	7	
3	U	1	3	3	4	4	3	0	1	2	2	1	0	1	3	2	2	4	4	3	1	1	1	2	0	2
4	2	1	1	4	M	M	2	1	2	7	3	3	3	3	4	2	4	4	3	0	3	3	3	2	2	2
11	M	M	M	M	M	M	4	3	3	3	3	2	1	1	3	2	1	1	0	0	9	1	2	1	7	9
12	M	M	M	M	M	M	4	3	3	3	3	1	1	1	3	2	1	1	4	4	2	3	7	0	4	3
13	M	M	M	M	M	M	4	3	3	3	3	1	1	1	3	2	1	1	1	4	2	3	7	4	4	3
14	M	M	M	M	M	M	4	4	4	3	5	4	3	3	4	6	7	7	7	7	7	7	8	2	5	3
15	2	2	1	2	3	4	3	5	4	4	3	3	3	5	4	2	2	2	3	3	M	M	M	2	3	3
16	3	3	4	3	4	3	6	7	7	5	7	7	6	5	7	5	7	7	4	4	2	2	3	1	5	5
17	2	3	3	3	2	4	4	3	2	1	1	1	3	5	3	3	3	3	4	6	3	3	2	7	1	3
18	1	3	4	3	9	6	6	6	4	3	1	M	3	4	6	2	2	8	7	8	M	M	7	7	5	5
19	7	7	3	3	4	4	6	4	3	4	4	4	2	3	4	4	4	3	3	4	4	5	4	6	4	4
20	6	6	7	3	3	4	7	7	5	4	3	3	3	4	6	1	3	3	6	M	M	M	8	5	5	5
21	8	7	5	3	4	4	4	7	7	7	8	7	5	6	8	7	7	7	6	6	6	6	7	8	6	6
22	2	4	2	6	3	3	3	3	3	5	6	7	7	8	4	5	4	6	6	6	5	6	6	2	2	5
23	M	M	M	M	M	M	M	M	M	M	M	M	0	6	5	5	6	7	M	M	M	M	5	8	5	5
24	M	M	M	M	M	M	M	8	M	3	3	4	7	2	4	6	7	7	6	5	6	4	4	5	8	6
25	8	8	6	6	7	7	8	7	5	3	3	3	4	7	2	4	6	7	4	5	4	4	5	5	6	6
26	2	4	3	3	5	6	3	4	3	7	6	5	5	5	3	3	3	2	3	4	6	6	4	2	4	4
27	6	5	6	9	4	3	3	3	3	5	3	4	3	3	4	4	2	3	2	5	7	7	4	4	4	6
28	4	5	M	7	2	8	8	8	8	8	8	8	8	5	3	5	8	7	7	2	3	3	1	4	4	4
29	M	M	M	M	3	2	4	1	2	3	3	3	5	6	5	6	4	6	6	7	7	3	3	3	4	4
30	8	M	M	7	3	3	4	4	4	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	5	5
MEAN	4	6	5	4	5	5	5	5	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4

M = MISSING DATA

*** SURFACE DATA		LINE ISLANDS EXPERIMENT												HOURLY OBSERVATIONS												***	
STATION NO. 94TES		SHIP SURVEYOR												FEB 1967													
DAY		SEA-LEVEL PRESSURE MBS IN TENTHS (1000+)																									
		LOCAL HOUR																									
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
16	M	119	105	96	92	92	98	108	119	122	129	119	112	105	92	85	85	95	98	105	108	115	119	119	119	109	
17	M	112	98	85	92	92	92	102	108	112	108	105	92	85	74	74	74	74	78	88	98	105	108	108	105	95	
18	M	105	92	88	88	85	92	92	105	115	119	112	102	92	81	78	78	78	81	98	105	108	108	108	108	97	
19	M	95	92	86	85	85	92	92	102	112	119	115	108	M	M	74	81	85	92	88	95	98	98	92	95		
20	M	95	85	81	81	74	78	88	95	95	98	98	85	78	71	58	58	54	58	68	74	81	88	88	92	80	
21	M	85	78	74	74	74	81	85	92	98	102	108	105	92	85	61	61	64	71	74	78	81	88	92	81		
22	M	85	78	74	74	74	85	88	95	98	105	102	92	85	74	68	64	68	71	71	78	81	85	85	82		
23	M	78	71	68	68	71	74	78	85	92	92	88	88	74	68	64	58	61	64	71	74	74	78	81	75		
24	M	78	74	64	61	64	71	81	88	88	85	78	78	74	68	71	64	71	74	81	81	88	98	98	102	79	
25	M	92	85	85	81	88	92	102	105	112	108	108	95	92	81	78	78	78	88	88	95	98	102	108	105	94	
26	M	98	92	85	85	85	92	105	108	115	112	108	102	92	85	78	74	78	81	88	92	98	105	108	105	95	
27	M	105	102	98	92	92	92	95	105	108	108	105	95	88	78	71	68	71	74	81	85	94	105	108	105	93	
28	M	95	88	82	81	81	87	92	102	107	108	105	98	88	79	73	71	74	77	83	89	95	100	102	101	90	

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***		
STATION NO. 94IES			SHIP SURVEYOR										MAR 1967												
			SEA-LEVEL PRESSURE MBS IN TENTHS, 1000+																						
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	M	88	78	78	78	81	92	98	98	105	98	85	78	64	64	68	71	71	78	81	88	95	95	92	84
2	88	81	74	81	74	78	81	55	85	98	98	92	81	74	74	58	71	71	78	88	88	92	94	95	83
3	92	81	74	74	78	85	92	98	105	105	105	92	81	74	74	74	78	85	92	98	105	103	112	115	92
4	112	105	98	98	102	108	119	122	132	135	129	119	112	105	108	112	112	119	122	135	139	139	139	139	118
11	M	M	M	M	M	M	M	132	135	145	142	132	122	108	98	95	102	102	105	108	125	132	132	132	121
12	125	115	112	112	112	119	132	135	139	139	125	115	105	95	92	92	92	92	98	112	112	115	115	105	114
13	98	88	85	81	78	85	88	108	115	115	112	102	92	78	74	74	78	85	92	98	105	108	102	93	93
14	95	85	81	81	78	85	88	105	108	115	102	95	85	78	74	74	78	85	88	102	108	115	115	108	93
15	102	92	85	85	88	95	105	112	119	122	119	108	98	88	85	85	88	95	98	98	112	122	125	119	102
16	112	105	98	98	98	105	M	119	125	125	129	119	115	102	98	92	98	102	122	125	129	132	135	125	113
17	125	119	112	115	119	122	125	135	142	145	142	125	115	112	102	98	98	102	105	119	125	129	132	122	120
18	115	105	98	98	98	98	109	119	125	132	129	119	102	98	88	85	88	92	102	112	115	119	125	112	108
19	105	92	92	92	92	92	95	112	115	122	115	102	92	85	74	74	78	92	95	112	119	122	122	115	100
20	105	105	95	98	98	102	102	108	122	125	119	98	98	92	85	78	81	92	98	112	119	122	125	112	104
21	105	92	92	92	95	98	105	115	122	125	125	105	98	92	85	81	85	88	95	105	112	115	119	98	102
22	98	92	85	85	85	95	102	112	119	119	115	108	98	85	74	71	74	85	92	105	108	115	122	108	98
23	98	92	85	81	85	85	95	105	112	119	119	98	92	78	74	71	74	78	85	102	105	112	112	108	94
24	102	98	92	92	92	98	108	122	132	135	125	98	95	92	85	81	81	88	95	115	115	122	122	119	104
25	105	105	98	92	92	98	108	125	125	132	132	115	98	92	85	85	85	85	92	108	108	115	119	112	105
26	102	95	85	85	88	95	M	112	119	122	119	105	98	88	81	78	78	81	85	98	105	115	112	112	98
27	M	85	85	85	85	85	92	108	112	112	122	105	95	74	78	78	74	78	85	95	95	102	105	98	93
28	95	85	78	78	78	81	85	95	102	105	102	92	85	88	64	61	64	71	74	88	98	102	102	98	86
29	88	81	74	71	71	74	81	95	92	105	98	92	81	74	74	74	78	81	92	105	112	115	119	112	89
30	112	105	105	102	105	112	119	129	135	129	M	M	M	M	M	M	M	M	M	M	M	M	M	M	115
MEAN	104	95	90	90	90	94	102	113	118	122	117	106	98	89	82	80	83	88	94	105	111	116	118	110	101

M = MISSING DATA

LINE ISLANDS EXPERIMENT

HOURLY OBSERVATIONS

SURFACE DATA

STATION NO. 94TES SHIP SURVEYOR

FEB 1967

SEA SURFACE TEMPERATURE (FAR IN TENTHS)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
16	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
17	784	780	781	798	795	797	793	800	805	805	803	801	806	802	803	803	803	801	802	802	802	802	802	802	790
18	800	802	790	798	800	796	803	803	803	803	803	803	803	804	804	804	804	803	802	799	797	797	798	799	801
19	799	799	799	799	797	798	804	805	806	806	808	799	808	814	813	812	810	805	803	805	805	805	805	805	805
20	805	805	805	805	803	801	802	802	804	798	801	800	806	804	803	802	802	803	807	801	800	800	799	801	802
21	801	804	806	805	803	796	794	795	798	802	801	799	788	790	796	793	794	791	793	790	789	783	784	789	795
22	776	790	M	797	776	778	784	796	797	797	796	799	798	800	794	795	795	797	783	789	788	788	788	791	
23	788	788	787	789	792	797	785	786	788	789	789	790	787	790	791	791	797	797	793	790	790	788	789	790	
24	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	
25	790	790	795	798	795	798	798	797	794	791	789	789	789	797	796	798	796	793	793	790	790	790	790	790	
26	794	795	797	796	799	798	794	777	795	783	781	781	794	792	792	792	796	794	797	793	792	789	788	788	
27	786	788	789	794	802	802	804	799	800	801	802	800	799	799	798	796	803	803	798	801	801	800	800	800	
28	799	798	794	798	796	796	794	794	794	794	801	801	802	803	804	802	805	802	800	790	790	788	787	797	
MEAN	793	794	794	797	796	796	795	794	795	795	796	795	797	798	799	799	800	799	797	795	795	792	793	793	796

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***		
STATION NO. 9415			SHIP SURVEYOR										MAR 1967												
DAY			SEA SURFACE TEMPERATURE (FAMR IN TENTHS)																						
			LOCAL HOUR																						
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	778	778	774	782	780	784	780	779	776	777	776	775	789	789	789	802	800	797	797	790	790	789	797	799	786
2	804	802	803	803	803	804	802	802	803	803	804	816	815	815	814	808	803	802	800	799	799	800	802	802	804
3	801	801	801	797	800	800	784	797	792	792	789	808	808	806	806	801	796	794	787	785	786	786	787	787	795
4	774	775	782	774	772	772	770	770	770	770	769	772	773	775	775	770	768	765	760	769	769	765	765	M	771
11	M	M	M	M	M	M	750	764	764	765	765	780	778	779	780	760	760	775	770	770	771	771	772	772	769
12	778	780	780	793	790	788	785	783	783	785	786	787	783	783	783	793	788	785	805	802	803	804	804	804	790
13	818	817	815	809	805	809	812	812	812	812	813	813	810	805	805	805	812	815	812	810	811	811	810	810	811
14	810	805	805	803	813	812	800	812	813	814	814	814	810	810	816	813	815	817	815	812	812	812	812	810	811
15	810	810	810	812	817	812	812	814	814	814	815	815	810	810	815	823	821	817	816	816	811	809	809	814	813
16	814	814	814	813	816	816	815	810	809	809	809	812	815	815	815	815	815	815	813	807	809	810	810	814	813
17	814	815	815	815	814	814	815	817	814	814	814	815	815	819	818	816	816	820	815	815	814	814	814	814	815
18	815	815	815	814	814	814	812	812	812	812	812	812	815	817	815	814	814	813	811	811	811	811	811	813	813
19	813	813	812	812	809	811	812	812	812	812	M	814	813	810	812	812	813	814	814	812	812	812	812	813	812
20	812	812	813	810	811	811	810	812	812	812	812	813	813	812	812	812	811	810	810	810	810	810	810	811	811
21	810	810	807	810	810	811	806	808	808	808	808	809	809	808	808	810	810	808	807	807	807	807	806	806	808
22	806	806	805	806	805	808	808	808	808	808	807	806	806	807	807	806	806	806	806	806	806	806	806	806	806
23	806	806	806	806	804	806	804	806	806	806	808	808	808	808	806	806	806	806	806	806	806	806	806	806	806
24	806	806	806	806	805	805	806	806	806	806	806	806	806	807	807	810	806	808	810	807	809	806	806	806	807
25	808	806	806	806	805	810	806	806	806	806	806	807	806	808	808	811	810	810	810	811	811	810	810	803	808
26	803	802	802	806	804	804	802	802	802	810	810	816	816	820	819	816	818	818	816	814	814	812	812	805	810
27	805	805	805	814	812	810	810	810	815	815	816	816	818	818	816	817	815	815	813	813	812	812	812	812	813
28	813	813	813	803	806	807	808	808	808	808	808	808	808	808	808	808	810	810	810	806	806	805	805	805	807
29	806	806	805	800	800	794	790	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788	788
30	789	789	788	795	793	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790	790
MEAN	804	804	804	804	804	804	800	801	800	801	802	806	805	805	805	805	805	805	804	803	803	802	803	805	803

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT													HOURLY OBSERVATIONS													***			
STATION NO. 94TES			SHIP SURVEYOR													FEB 1967													1009 MBS			
DAY				CRY BULE TEMPERATURE (FAHR IN TENTHS)																												
				LOCAL HOUR																												
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN					
16	M	777	788	786	790	796	757	797	789	781	799	809	804	830	830	830	801	792	808	795	795	778	780	779	783	789	795					
17	M	784	777	787	793	790	796	770	785	791	787	801	756	819	780	777	795	795	795	793	792	800	805	801	802	802	791					
18	M	796	755	794	798	797	786	792	753	805	805	809	807	814	810	805	805	807	803	800	790	791	791	791	795	796	799					
19	M	794	792	789	790	795	796	796	801	803	809	810	825	830	816	820	802	803	802	805	802	800	788	801	816	803	803					
20	M	801	792	781	795	753	753	758	783	782	782	782	755	750	780	762	795	768	775	778	774	781	759	766	771	778	773					
21	M	777	788	786	790	796	757	797	789	781	799	809	804	830	830	830	801	792	808	795	795	778	780	779	783	789	795					
22	M	770	790	788	792	795	790	793	795	800	800	802	811	806	809	812	809	808	805	800	793	791	792	790	788	797	795					
23	M	790	789	790	793	797	797	797	797	797	797	797	797	797	797	797	797	797	797	797	797	797	797	797	797	797	797					
24	M	778	776	789	786	785	795	793	800	798	803	802	816	810	823	797	798	798	798	791	791	792	791	792	791	799	797					
25	M	791	790	796	797	792	795	795	797	794	794	785	790	791	792	800	795	803	795	793	789	785	32	780	780	792	792					
26	M	780	778	779	775	778	780	782	784	782	788	802	788	796	755	794	794	795	798	792	783	782	782	781	782	787	787					
27	M	780	784	785	788	790	793	797	795	800	815	801	801	802	754	790	795	795	797	793	788	785	786	786	789	793	793					
28	M	787	786	795	789	785	787	788	789	790	793	801	790	791	794	795	793	790	797	787	785	785	781	781	782	788	788					
MEAN																																

M = MISSING DATA

M = MISSING DATA

*** SURFACE DATA ***			LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS ***												
STATION NO. SMILES			SHIP SURVEYOR										FEB 1967 1005 MBS												
DAY	01 02		03 04		05 06		07 08		09 10		11 12		13 14		15 16		17 18		19 20		21 22		23 24		MEAN
	W		W		W		W		W		W		W		W		W		W		W		W		
	711 705		719 719		724 730		728 732		721 725		723 730		724 731		726 732		724 736		719 721		722 722		723 734		
16	727 711		732 728		730 724		721 728		721 728		721 728		721 728		721 728		721 728		721 728		721 728		721 728		729
17	737 726		732 728		731 725		733 732		733 732		733 732		733 732		733 732		733 732		733 732		733 732		733 732		729
18	732 723		734 729		731 725		734 729		734 729		734 729		734 729		734 729		734 729		734 729		734 729		734 729		728
19	733 736		730 724		740 723		747 723		725 729		738 744		732 735		723 723		723 723		723 723		723 723		723 723		732
20	742 734		721 714		724 714		726 741		742 740		728 744		739 742		744 739		765 758		740 739		740 739		740 739		738
21	740 736		734 737		733 723		725 724		726 725		725 726		727 727		733 722		717 726		722 722		724 724		732 732		729
22	732 734		719 722		723 725		723 723		721 730		727 702		732 728		713 730		739 738		737 740		735 735		735 735		728
23	737 739		743 740		736 721		725 722		728 720		727 714		711 724		732 737		735 730		733 733		736 736		736 736		729
24	732 734		730 731		724 724		724 723		719 724		722 734		730 725		728 728		724 724		724 724		722 722		722 722		726
25	725 724		734 734		733 733		732 732		724 724		721 721		729 725		722 722		730 733		733 735		737 737		737 737		730
26	739 736		737 734		736 734		740 734		734 730		745 742		732 717		729 729		701 707		710 705		717 710		713 713		726
27	720 721		722 724		703 710		720 720		712 712		708 717		715 713		714 721		716 726		728 727		721 721		733 733		719
MEAN	733 731		728 734		728 724		728 728		724 730		732 731		727 727		724 726		728 733		726 728		728 728		731 731		729

M = MISSING DATA

SURFACE DATA			SHIP SURVEYOR										LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***
STATION NO. DATE			SHIP SURVEYOR										LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***
STATION NO. DATE			SHIP SURVEYOR										LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***
STATION NO. DATE			SHIP SURVEYOR										LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***
STATION NO. DATE			SHIP SURVEYOR										LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***
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STATION NO. DATE			SHIP SURVEYOR										LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***
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STATION NO. DATE			SHIP SURVEYOR										LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***
STATION NO. DATE			SHIP SURVEYOR										LINE ISLANDS EXPERIMENT																				

M = MISSING DATA

*** SURFACE DATA			LINE ISLANDS EXPERIMENT										WINDY OBSERVATIONS										***			
STATION, AC, ONTES			SHIP SUPERVISOR										FEB 1967										1009 MOS			
DAY			SPECIFIC HUMIDITY (G/MG IN TENTHS)																							
			LOCAL HOUR																							
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN	
16	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	
17	171	162	154	167	167	165	173	172	174	170	175	173	170	174	172	171	170	167	215	167	169	169	175	175	174	
18	177	171	174	169	174	172	175	174	172	170	176	175	175	179	174	177	181	185	167	166	165	165	172	171	173	
19	174	175	175	175	172	174	180	179	172	170	178	178	178	179	173	169	168	146	146	183	179	176	177	174	175	
20	175	176	173	207	179	169	183	169	170	173	175	167	174	155	170	172	178	177	167	163	169	165	173	170	172	
21	180	175	168	173	149	164	171	180	170	180	179	172	181	179	166	155	169	169	176	165	162	174	179	174	174	
22	179	185	174	177	174	169	170	170	171	173	173	170	171	171	169	192	179	194	190	179	178	179	177	183	179	
23	174	175	167	168	167	170	169	169	168	178	175	178	157	174	172	164	168	172	178	177	179	176	176	172	172	
24	177	179	181	179	176	168	170	169	161	172	167	171	164	163	170	174	177	175	173	175	177	175	177	168	172	
25	174	175	173	174	170	170	170	169	167	171	169	175	174	173	170	169	172	173	170	167	169	171	171	171	171	
26	170	170	175	175	175	173	173	174	170	170	174	168	173	172	170	168	172	173	175	176	177	177	177	177	173	
27	178	177	177	176	174	174	175	179	175	174	183	182	180	174	166	181	157	160	162	160	165	162	163	164	171	
28	167	165	159	170	158	162	167	155	160	163	161	166	165	163	164	168	185	171	172	171	174	175	173	171	167	
MEAN	175	174	172	176	172	170	173	172	170	173	173	174	174	171	171	170	171	172	178	171	172	172	174	173	173	

M = MISSING DATA

*** SURFACE DATA SHIP SURVEYOR ***

STATION NO. 94155

LIFE ISLANDS EXPERIMENT

HOURLY OBSERVATIONS

1009 MGS

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
1	172	172	171	171	171	172	174	171	171	168	169	167	166	166	160	160	159	163	171	166	172	175	174	170	170
2	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
3	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171	171
4	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
11	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
22	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
13	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
14	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
15	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
16	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
17	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
18	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
19	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
20	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
21	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
22	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
23	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
24	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
25	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
26	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
27	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
28	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
29	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
30	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174
MEAN	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174	174

M = MISSING DATA

*** SURFACE DATA			LIFE ISLANDS EXPERIMENT														HOURLY OBSERVATIONS ***																			
STATION NO. GATES			SHIP SURVIVOR														FEB 1947										LCOS HRS									
			RELATIVE HUMIDITY (PERCENT IN TENTS)																																	
DAY			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN									
16	M	M	425	402	749	749	746	746	749	741	754	727	797	777	753	742	823	854	767	905	884	872	873	877	857	871	819									
17	M	M	422	734	714	714	749	740	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	811									
18	M	M	414	422	811	429	822	816	814	811	740	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	803									
19	M	M	749	433	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	844	730									
20	M	M	890	837	804	821	746	749	741	754	873	827	797	777	753	742	823	854	767	905	884	872	873	877	857	871	819									
21	M	M	906	875	817	814	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810									
22	M	M	825	824	769	740	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	743	798									
23	M	M	873	886	858	857	849	842	842	842	842	842	842	842	842	842	842	842	842	842	842	842	842	842	842	842	797									
24	M	M	821	829	802	822	747	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	750	798									
25	M	M	831	839	860	873	860	849	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	840	804									
26	M	M	869	853	853	837	842	818	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	810	828									
27	M	M	806	804	812	804	760	772	796	753	757	773	733	785	777	762	763	786	781	781	781	781	781	781	781	781	801									
28	M	M	840	813	822	831	817	807	825	812	786	804	769	808	783	788	785	781	785	798	832	809	820	827	832	822	810									

M = MISSING DATA

SURFACE DATA

SHIP SURVEYOR

MAR 1967

ISLANDS

EXPERIMENT

RELATIVE HUMIDITY (PERCENT IN TEST-5)

DAY	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23	C24	MEAN
1	935	915	907	887	829	821	847	824	764	734	724	780	780	815	828	747	718	759	704	792	817	833	817	823	806
2	906	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
3	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
4	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
5	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
6	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
7	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
8	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
9	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
10	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
11	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
12	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
13	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
14	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
15	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
16	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
17	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
18	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
19	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
20	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
21	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
22	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
23	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
24	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
25	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
26	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
27	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
28	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
29	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915
30	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915	915

W = MISSING DATA

WINDY OBSERVATIONS

LINE ISLANDS EXPERIMENT

SHIP SURVEY

DATE

STATION NO. DATA

DAY

FEB 1947

WIND DIRECTION (DEGREES)

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
16	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	43 20
17	58	41	74	70	90	85	80	81	72	73	71	74	90	82	88	92	90	76	80	70	65	55	45	40	74 15
18	34	41	60	93	90	100	90	80	80	100	80	84	87	78	82	63	75	60	65	55	60	62	75	95	74 13
19	89	100	78	85	M	93	120	1	95	90	87	57	73	45	58	92	82	72	65	80	82	85	85	80	83 11
20	84	44	90	83	90	100	75	37	40	350	32	75	90	48	85	85	63	40	60	50	45	68	42	90	86 13
21	54	62	80	87	83	85	85	84	67	51	63	93	100	95	102	45	70	50	80	94	91	84	58	95	83 12
22	104	104	83	100	100	95	110	87	117	97	101	95	100	98	90	83	84	70	90	85	82	89	91	84	94 14
23	85	93	50	105	108	107	103	115	105	103	89	100	102	20	108	103	102	100	100	87	82	92	92	90	95 13
24	55	105	104	102	107	112	115	1	115	111	112	108	109	114	120	115	20	100	80	103	112	108	105	107	104 14
25	109	110	104	122	120	117	124	1	122	125	105	112	112	110	105	104	103	110	115	101	109	104	105	55	111 18
26	53	84	57	58	95	106	110	10	100	101	91	82	105	73	86	73	85	82	75	70	80	73	74	77	88 14
27	50	84	59	70	60	50	53	58	65	52	53	117	101	61	39	97	85	67	81	72	79	82	88	81	70 12
28	44	64	45	80	95	80	85	90	93	87	78	84	73	51	68	80	85	100	70	83	94	70	98	103	81 13
MEAN	47	82	84	92	96	94	98	97	88	83	80	83	50	86	83	89	79	79	79	77	81	79	81	85	85
SD	15	14	13	13	14	14	13	14	16	14	14	14	15	14	13	14	14	14	14	16	14	15	13	14	14

MEAN = MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (IN TENTHS).

M = MISSING DATA

*** SURFACE DATA				LINE ISLANDS EXPERIMENT										HOURLY OBSERVATIONS										***			
STATION NO. SATES				SHIP SURVEYOR										SEP 1967													
DAY					SCALAP WIND SPEED (MPH IN TENTHS)																						
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN		
17	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
18	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
19	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
20	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
21	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
22	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
23	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
24	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
25	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
26	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
27	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
28	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
29	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
30	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
31	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
32	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	
33	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	

W = MISSING DATA

LINE ISLANDS EXPERIMENT																								MOUSELY OBSERVATIONS										***	
SURFACE DATA												SHIP SURVEYOR												MAR 1967											
STATION, N. L. DATE												WIND DIRECTION (DEGREES)																							
												LOCAL HOUR																							
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN										
1	104	100	107	130	113	115	112	103	124	98	121	124	126	118	105	107	105	82	113	114	114	122	122	112	112	111	12								
2	111	106	127	94	95	95	53	45	95	128	57	107	86	39	47	44	45	60	70	75	68	74	59	58	74	11									
3	65	62	51	50	43	62	54	47	54	55	81	70	82	83	86	70	73	75	75	68	74	100	107	73	67	11									
4	68	51	77	65	75	65	65	75	84	84	71	72	73	72	83	84	84	85	83	96	83	100	107	106	79	10									
11	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	11									
12	50	112	73	65	63	80	74	81	122	101	88	58	112	124	114	114	117	12	10	10	54	58	57	106	101	11									
13	44	72	84	67	62	77	50	46	54	92	86	84	84	76	62	71	53	81	50	55	30	54	80	67	82	15									
14	62	61	61	125	69	58	80	100	101	103	95	110	94	84	80	88	88	88	88	88	77	80	67	82	70	89	10								
15	73	72	91	107	94	104	78	92	89	72	69	94	100	101	108	95	96	88	82	87	85	60	54	45	85	7									
16	41	37	37	60	64	85	45	74	55	85	72	75	80	77	68	74	82	87	90	77	45	88	88	85	75	15									
17	44	43	74	75	63	53	75	74	46	74	98	87	89	84	97	104	100	80	95	58	91	93	94	95	88	16									
18	113	121	121	86	95	94	107	100	103	100	55	91	50	95	80	77	84	80	70	65	55	63	63	45	86	18									
19	64	67	74	53	65	74	62	60	65	100	55	91	50	95	73	72	73	70	60	55	65	46	55	42	64	17									
20	46	43	47	74	43	58	52	50	45	48	62	44	34	54	57	55	40	42	52	55	35	42	42	52	48	19									
21	61	54	63	45	60	43	55	57	55	45	52	97	55	55	31	54	45	75	60	58	75	74	79	68	62	13									
22	101	104	98	104	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	13								
23	104	100	105	105	115	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	11								
24	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	11								
25	65	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	15									
26	97	83	71	95	90	91	104	117	105	120	102	97	122	102	103	115	102	87	112	114	98	108	85	92	101	12									
27	67	14	90	80	80	68	59	55	62	65	60	61	65	61	142	107	83	47	40	40	40	41	43	340	61	10									
28	64	44	50	90	46	76	72	50	80	73	48	90	88	50	44	56	57	52	64	54	68	61	68	62	64	13									
29	54	56	55	77	75	89	75	74	70	68	74	71	64	75	74	63	63	46	54	46	40	46	59	54	65	14									
30	54	55	44	67	74	87	83	90	71	72	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	14									
MEAN	74	72	71	80	79	81	81	82	87	85	84	85	86	84	82	83	82	79	78	72	68	68	69	73	79										
SD	11	14	14	11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	13									
MEAN - MEAN VECTOR WIND IN WHOLE DEGREES AND MPH (1/4 TENTHS). M = MISSING DATA																																			

M = MISSING DATA

MEAN = MEAN, VECTOR WIND IN WHOLE DEGREES AND MPH (1/4 TENTHS).

DAY	SURFACE DATA										SHIP SURVEYOR										LINE ISLANDS EXPERIMENT										PEUPLY OBSERVATIONS										WMO 1967
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	WTAH																	
1	14	14	13	13	14	15	14	13	14	12	15	13	14	11	12	15	13	12	12	10	10	11	12	13																	
2	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13																	
3	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13																	
4	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13																	
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
13	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
14	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
15	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
16	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
17	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
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19	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
20	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
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22	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
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24	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
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30	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10																	
MEAN	14	15	14	13	13	13	13	13	14	14	15	14	14	14	13	13	13	14	14	14	15	15	13	14	14																

M = MISSING DATA

USC&GSS SURVEYOR

DAILY RAINFALL TOTALS FOR EACH RAIN GAUGE;
24-HR PERIOD ENDS AT 1400 LOCAL TIME

Date	Rain Gauge (inches)			Date	Rain Gauge (inches)		
	#1	#2	#3		#1	#2	#3
17 Feb.	.65	.69	.76	13 Mar.	.04	.02	.08
18	.32	.35	.43	14	.06	.04	.06
19	T	T	T	15	0	0	0
20	.93	.76	1.01	16	.07	.08	.09
21	.11	.28	.30	17	.09	.09	.09
22	0	0	0	18	.40	.13	.52
23	.05	.01	.08	19	0	0	0
24	.21	.23	.23	20	0	0	0
25	M	M	M	21	.06	.03	.07
26	.03	.01	.03	22	3.87	3.63	4.36
27	.09	.14	.11	23	.19	.11	.21
28	0	0	0	24	M	M	M
TOTAL	2.39	2.47	2.95	25	.18	.16	.22
1 Mar.	0	0	0	26	.55	.33	.59
2	.31	1.04	.73	27	M	M	M
3	T	.15	.12	28	.81	.72	1.10
4	0	0	0	29	0	0	0
11	0	0	0	30	.09	.12	T
12	0	0	0	TOTAL	6.72	6.65	8.24

T = Trace

M = Missing

Note: additional detail can be inferred from hourly surface weather observations,
available on microfilm.

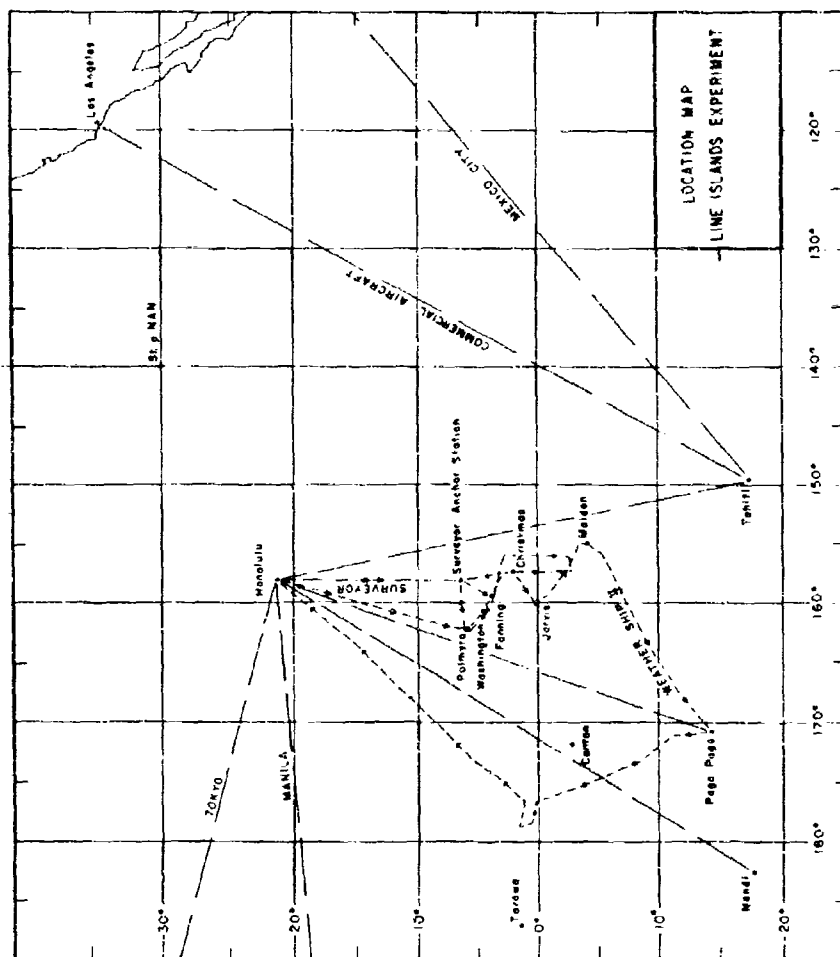


Fig. 1 Location map, Line Islands Experiment, showing tracks of the *USCGS Surveyor* and *Weather Ship II*, and commercial jet aircraft routes from which routine data are available. During the experimental period, the rawinsonde stations nearest the Line Islands were Honolulu, Canton Island, Nandi, Pago Pago and Tahiti.

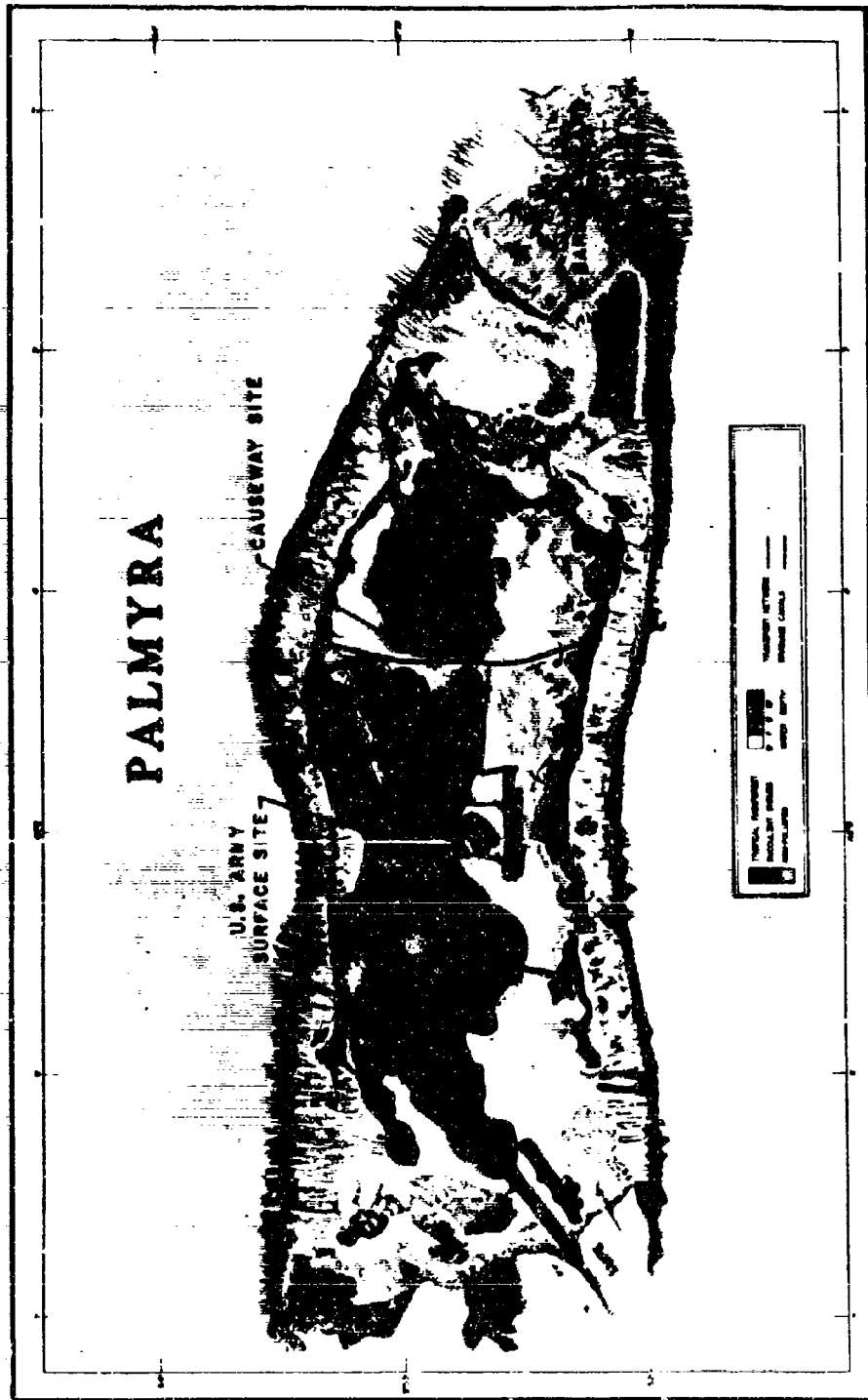


Fig. 2 Map of Palmyra, showing the three sites from which surface wind observations were made. (Compiled and drawn by Inge Kendall, based on aerial photos by Bob Kendall)



Fig. 3 Near-vertical aerial view of developed portion of Palmyra, taken from an altitude of 10,000 ft. The runway dimensions are 300 by 6,000 ft. It was cleared of heavy shrubbery in mid-February, 1967. The various observing facilities are located by number: (1-14) locations of rain gauges 1-14; (15) radar and photo tower; (16) second Bolex time-lapse camera, aimed toward west-southwest; (17) second Rolleiflex camera, forming stereo pair with camera on radar tower; (18) radiometer site; (19) U.S. Air Force GMD site; (20) U.S. Army surface site; (21) APT receiving site; (22) atmospheric electricity measurements site; (23) causeway site. (Photo by Bob Kendall)

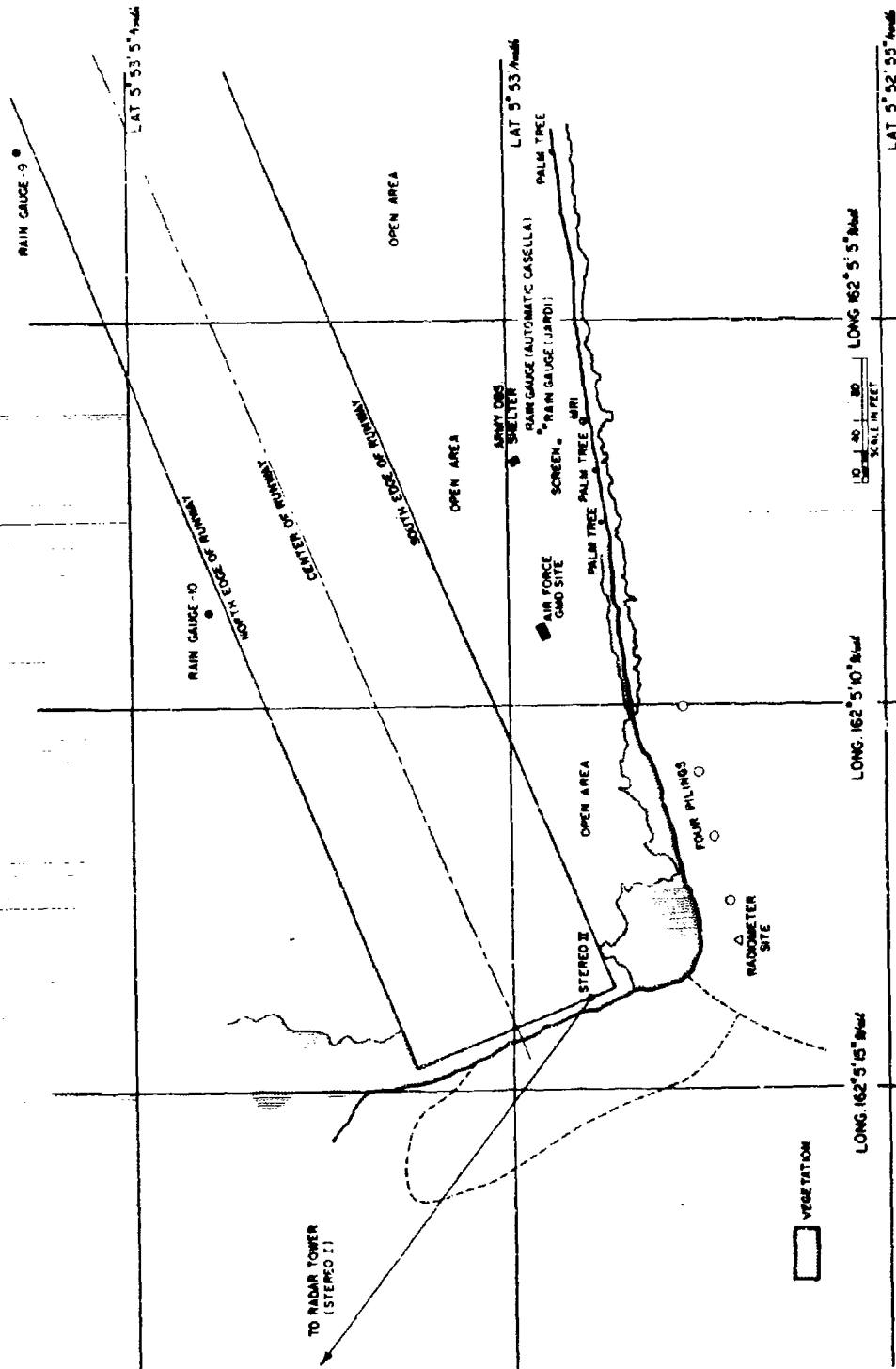


Fig. 4 Sketch of observing facilities near west end of runway, Palmyra.
(Based on a survey by H. M. E. van de Boogaard and A. Pallmann)



Fig. 5 U.S. Army surface observation site, Palmyra, showing (left to right) the NRI, Jardi and Dines rain gauges, instrument shelter, and observers' shelter. All brush was cleared from the area during the first week in March. To the east (left) of the instruments, the nearest palm tree is 400 ft distant. (NCAF photo)



Fig. 6 Causeway site, Palmyra, looking north, showing the MRI set. (NCAI photo)

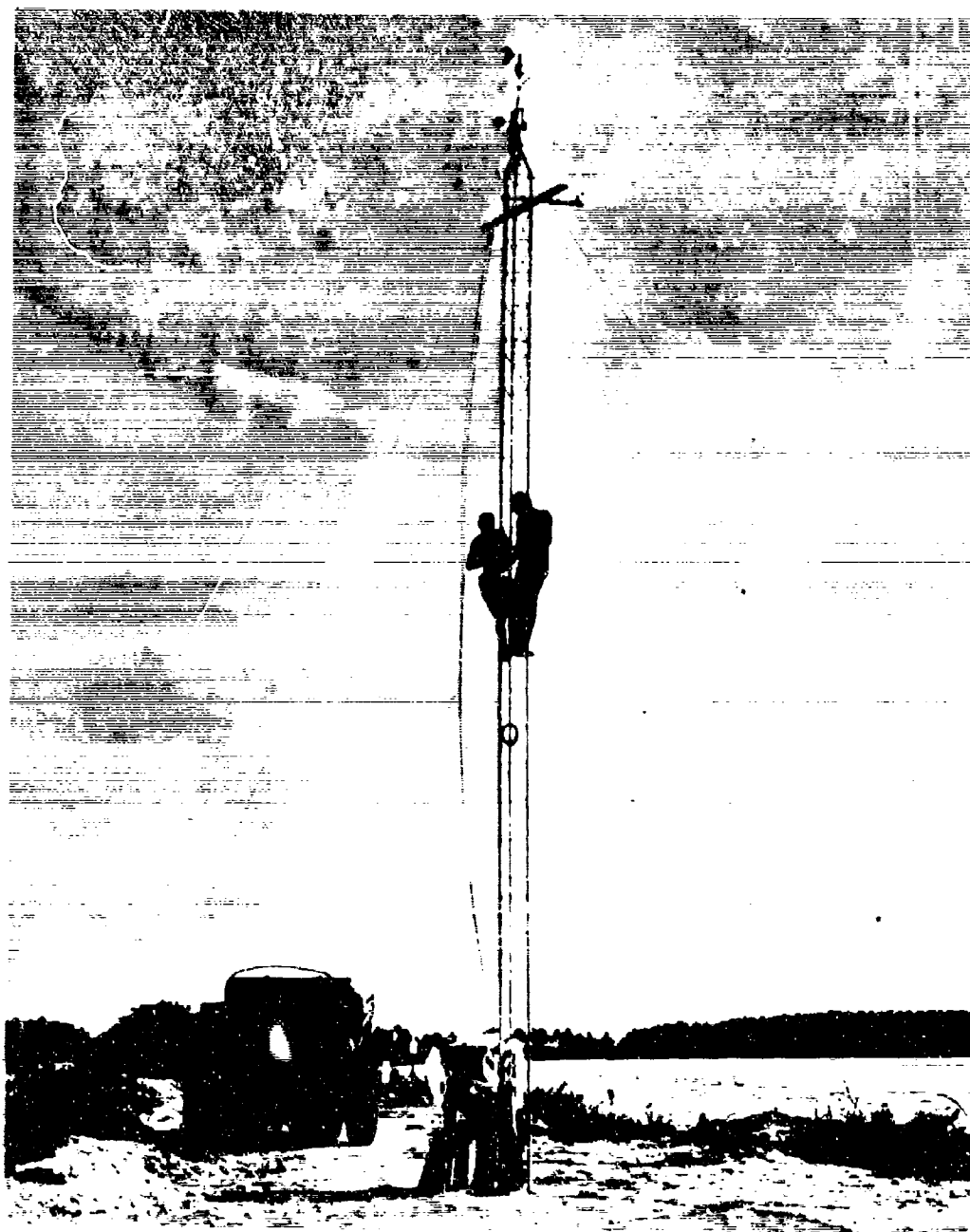


Fig. 7. Causeway site, Palmera, looking north, showing the GMQ-12 wind sensors on a 40-ft tower, and the MER of Fig. 6 in the background. (NCAR photo)

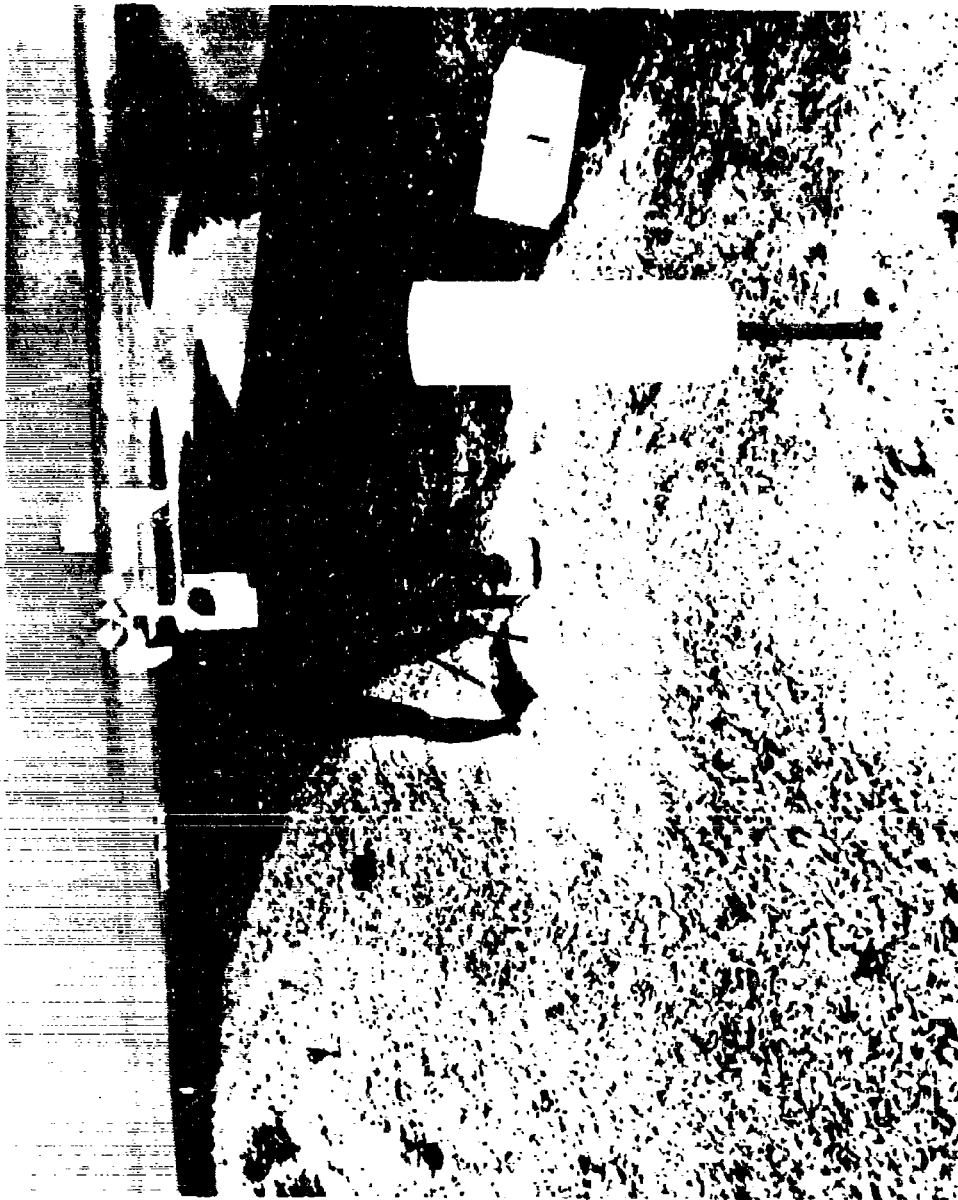


Fig. 8 Barren Island site, Palmyra, looking south. (NCAR Photo)

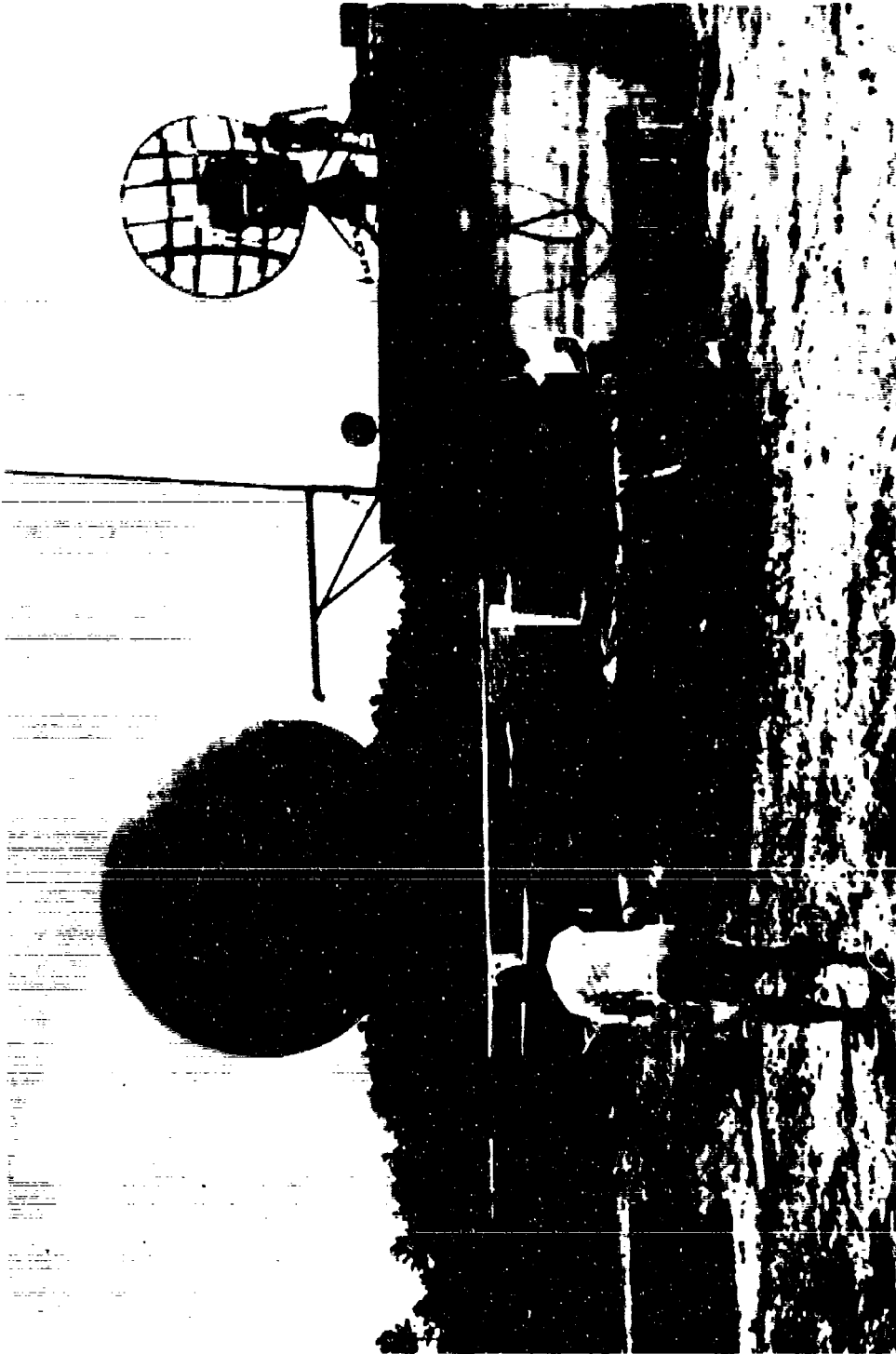


Fig. 9 GMD-1B release on Palmyra, looking northeast. (NCAP photo)

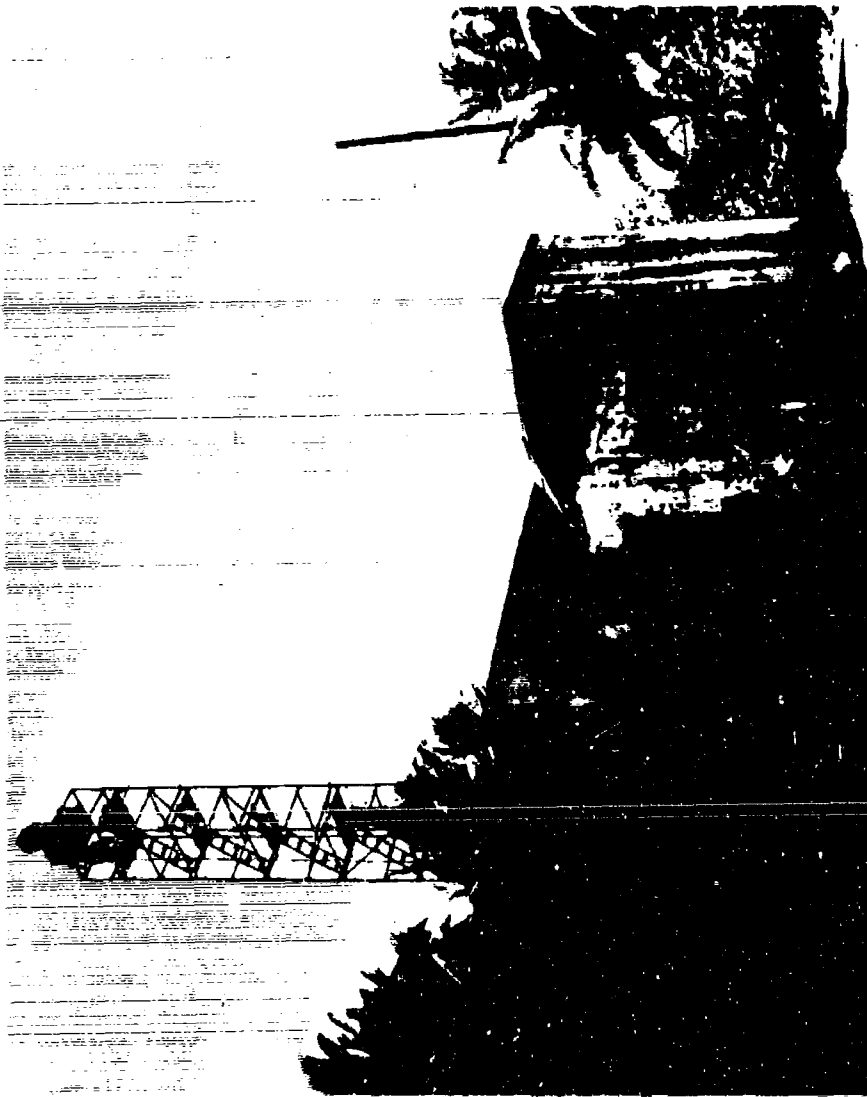


Fig. 10 Radar and photo tower, Palmyra. The antenna is 67 ft above ground level. The photography was carried out from the highest platform on the tower, just below the antenna. The radar equipment is in the air-conditioned shack atop the blockhouse. (NCAR photo)

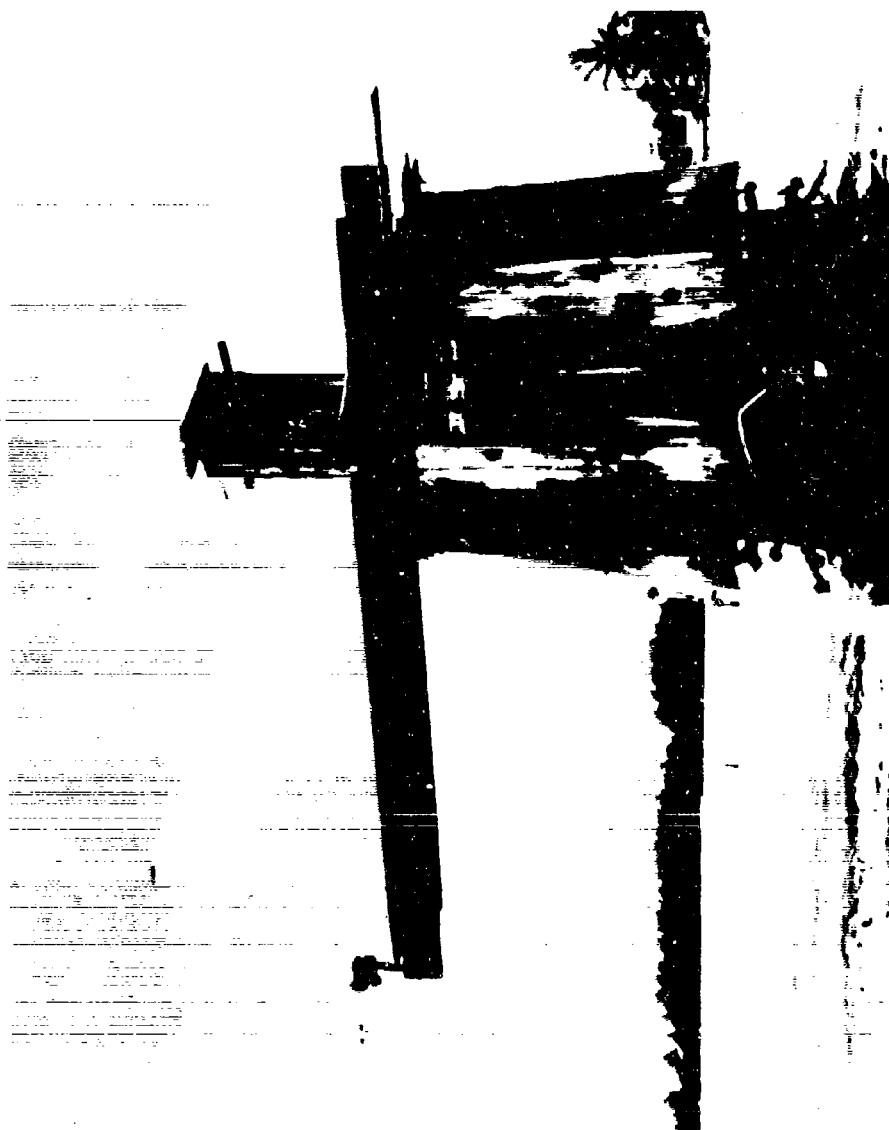


Fig. 11 Piling in Palmyra lagoon serving as radiometer site. The net infrared radiometer is suspended over the lagoon on the extreme left. (NGAF photo)



Fig. 12 Checking the Eppley pyrhelimeter atop the piling of Fig. 11. (NCAR photo)

FANNING ISLAND

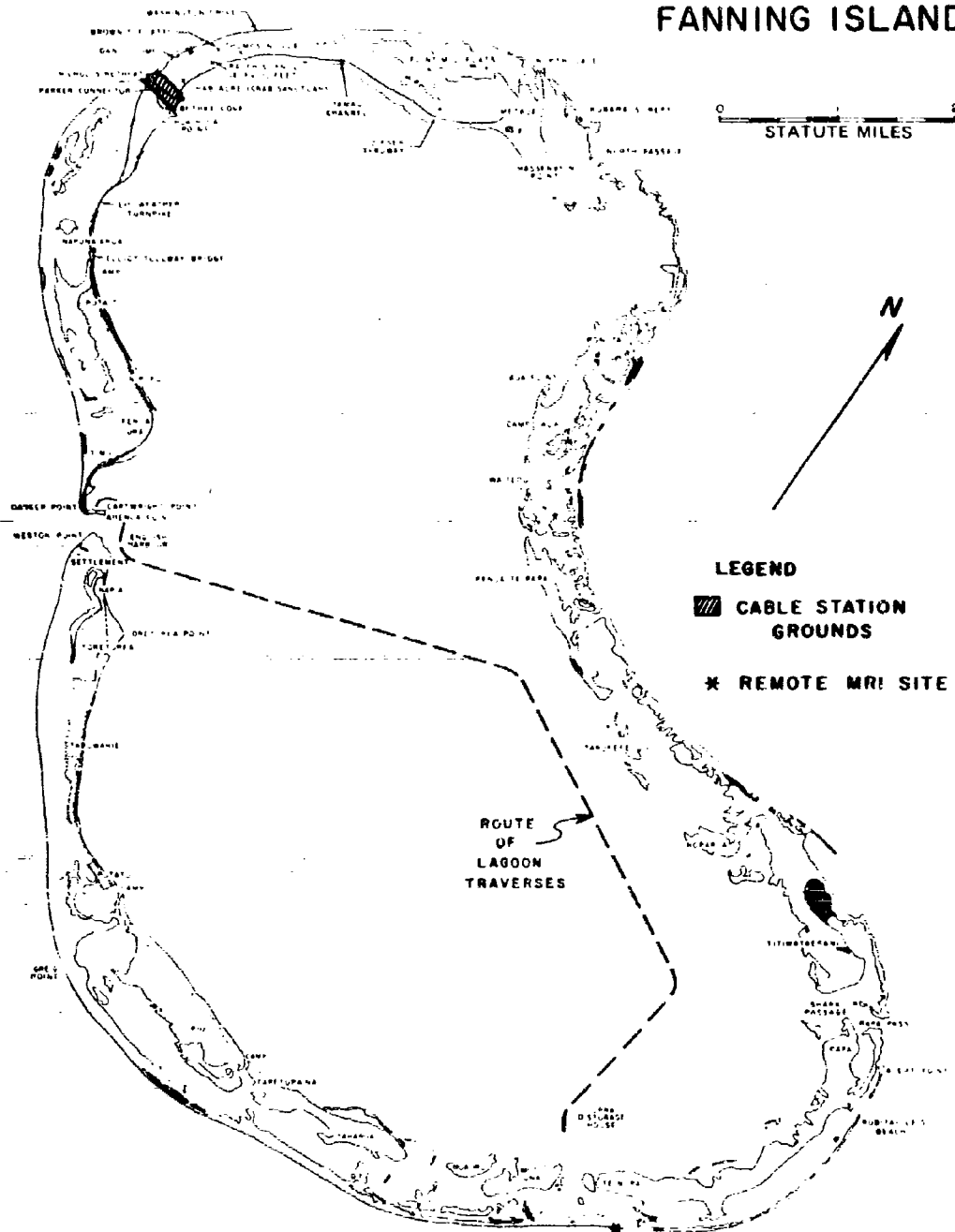


Fig. 13 Map of Fanning Island showing main observing areas in vicinity of Cable Station and remote MRI site. Track of five lagoon cross sections is also shown.



Fig. 14 Fanning Island from 10,000 ft looking south. Army surface site at Huachuca Point and remote MRI site of Robitaille's Beach visible. Route of lagoon traverses shown. (Photo by Bob Kendall)

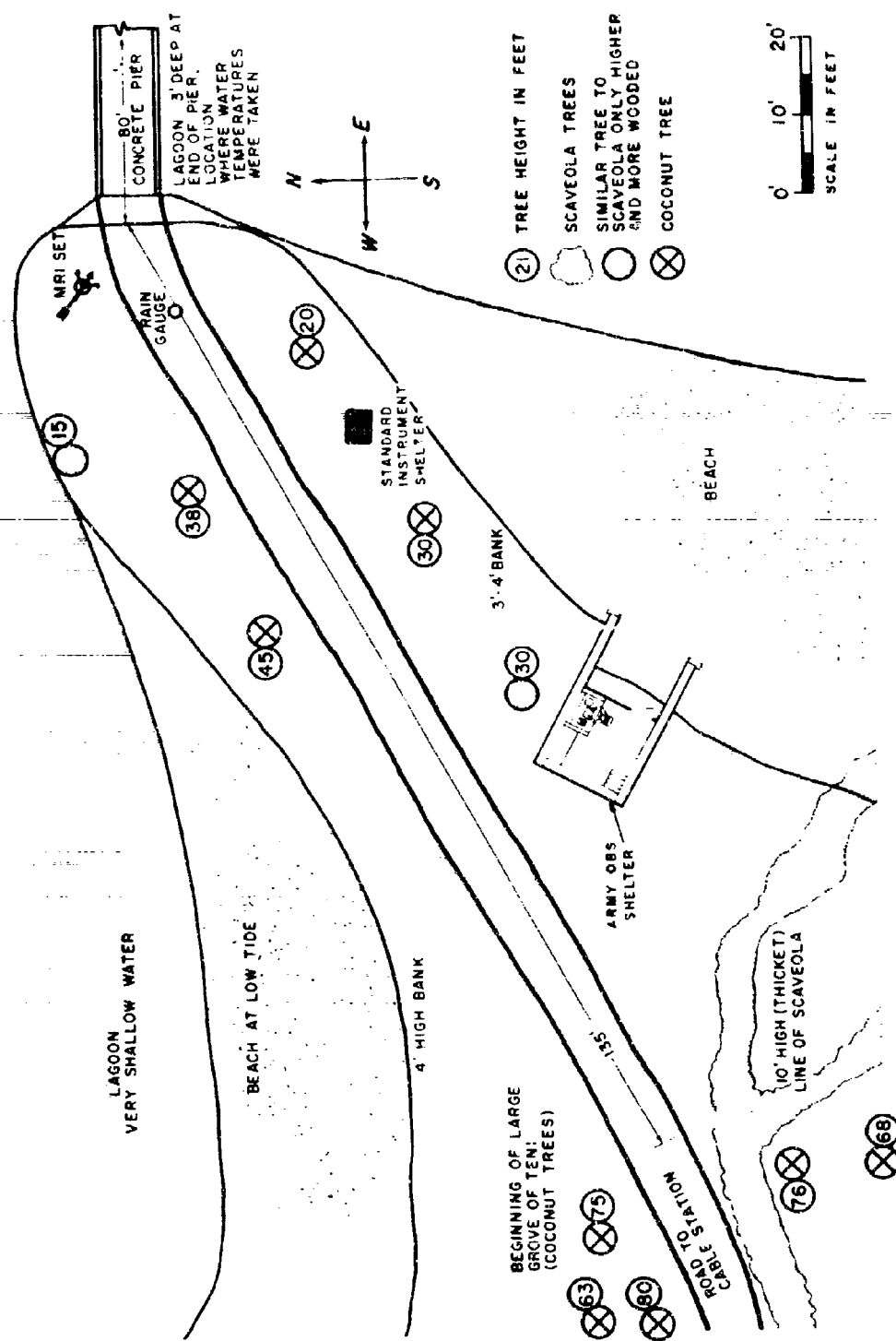


Fig. 15 Sketch of U.S. Army surface observation site at
Huachuca Point, Fanning Island. (Drawn by Dick Flint)

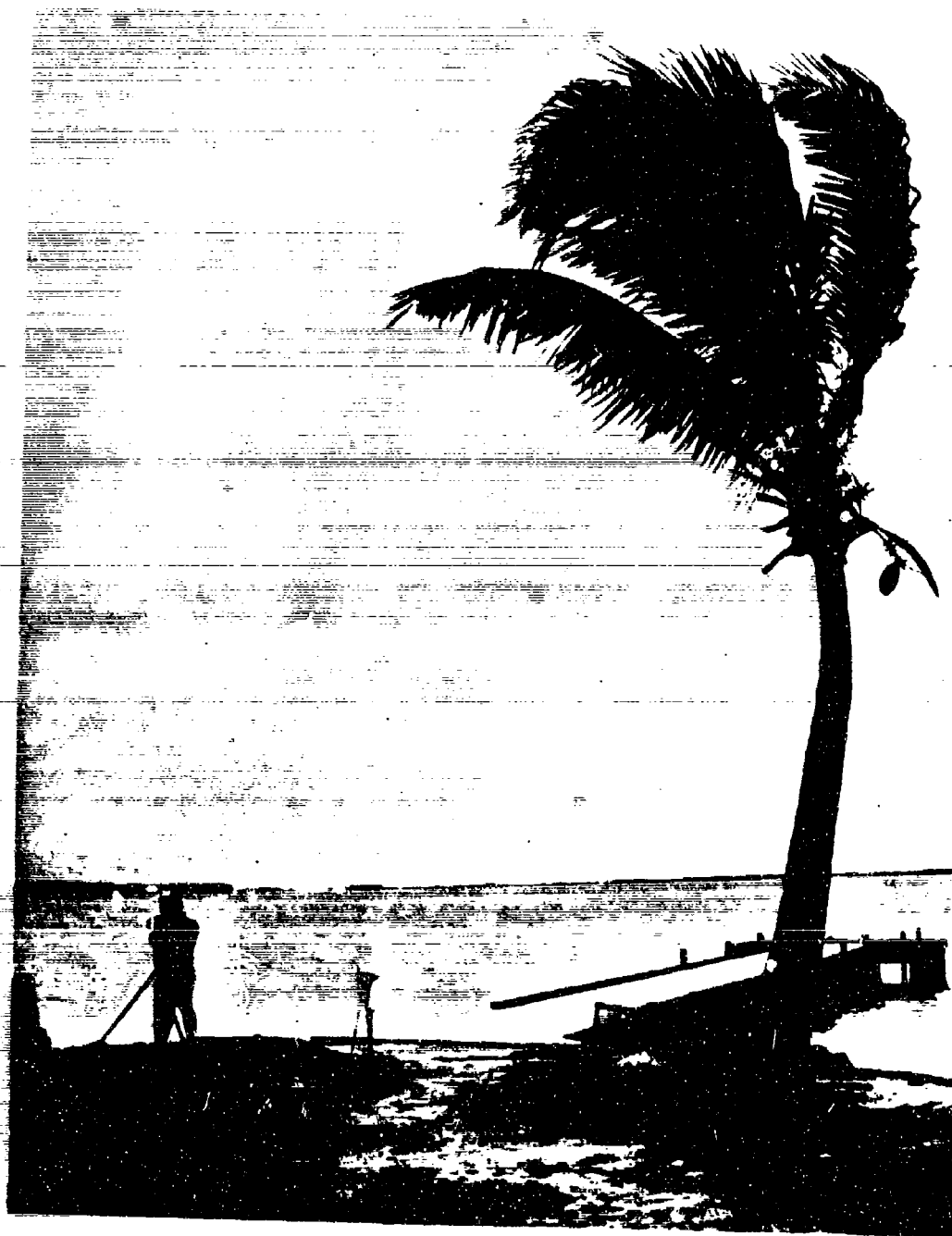


Fig. 16 U.S. Army surface observing site, Huachuca Point, Fanning Island. Pier was true east-west. Coconut tree is 30 ft (one and one-half times its height) south-southwest of wind set. (NCAR photo)



Fig. 17 Aerial view of remote MRI site on western end of Rohitaille's Beach, Fanning Island. View is looking northeast from an altitude of 1,200 ft. This site was accessible only by boat, plus wading, and offered excellent off-ocean exposure for all winds except those north of 060 degrees. (NCAR photo)



Fig. 18 Fanning Island ravine release site looking north-northeast. This area is devoid of palms but has considerable lower vegetation. Tracking antenna is on the far right, hydro-gen generators just to the right of center. (NCAR photo)

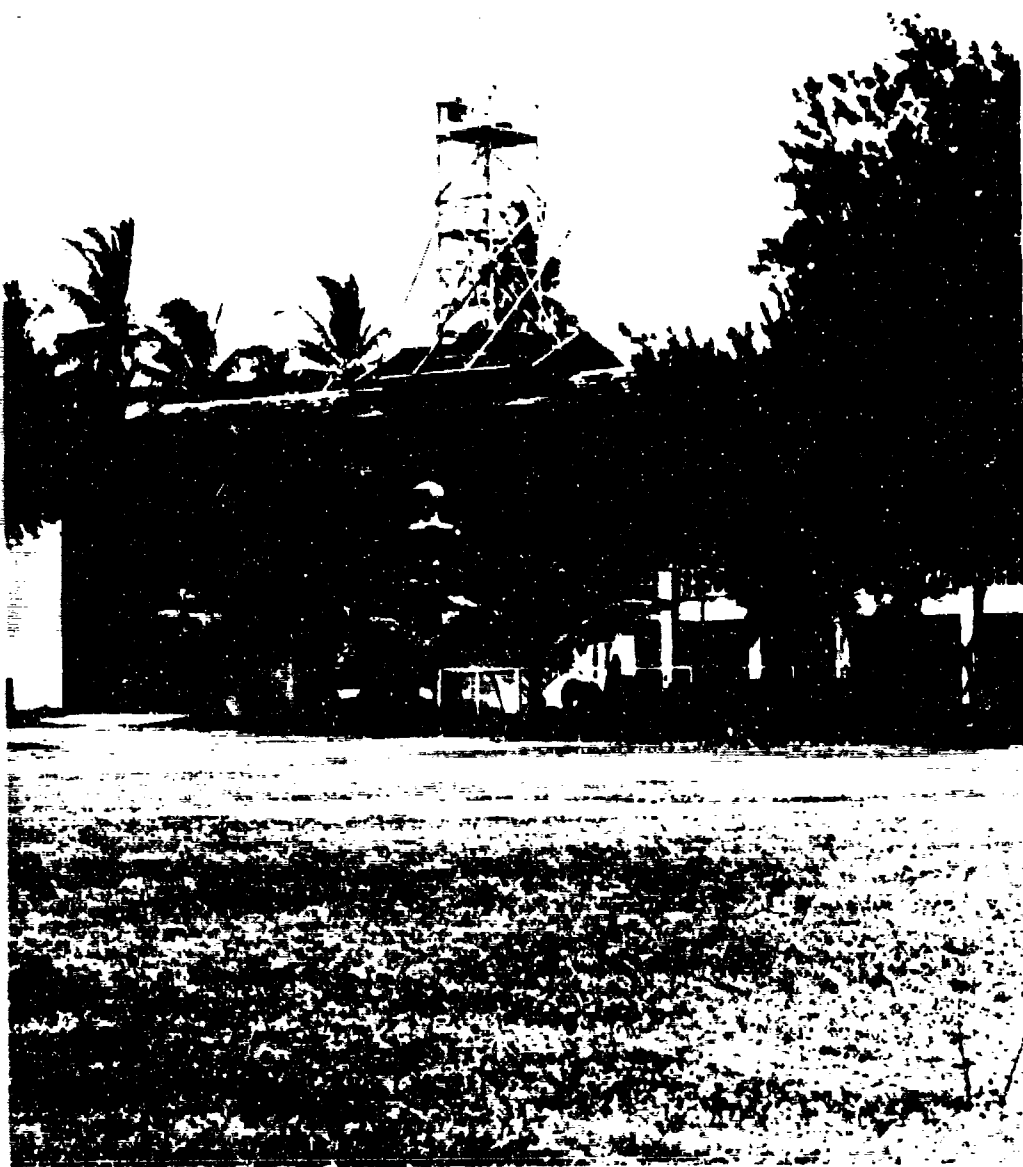


Fig. 19 Photo tower built atop former administration building, Cable Station, Fanning Island. The cameras are elevated 65 ft above the ground. (NCAR photo)

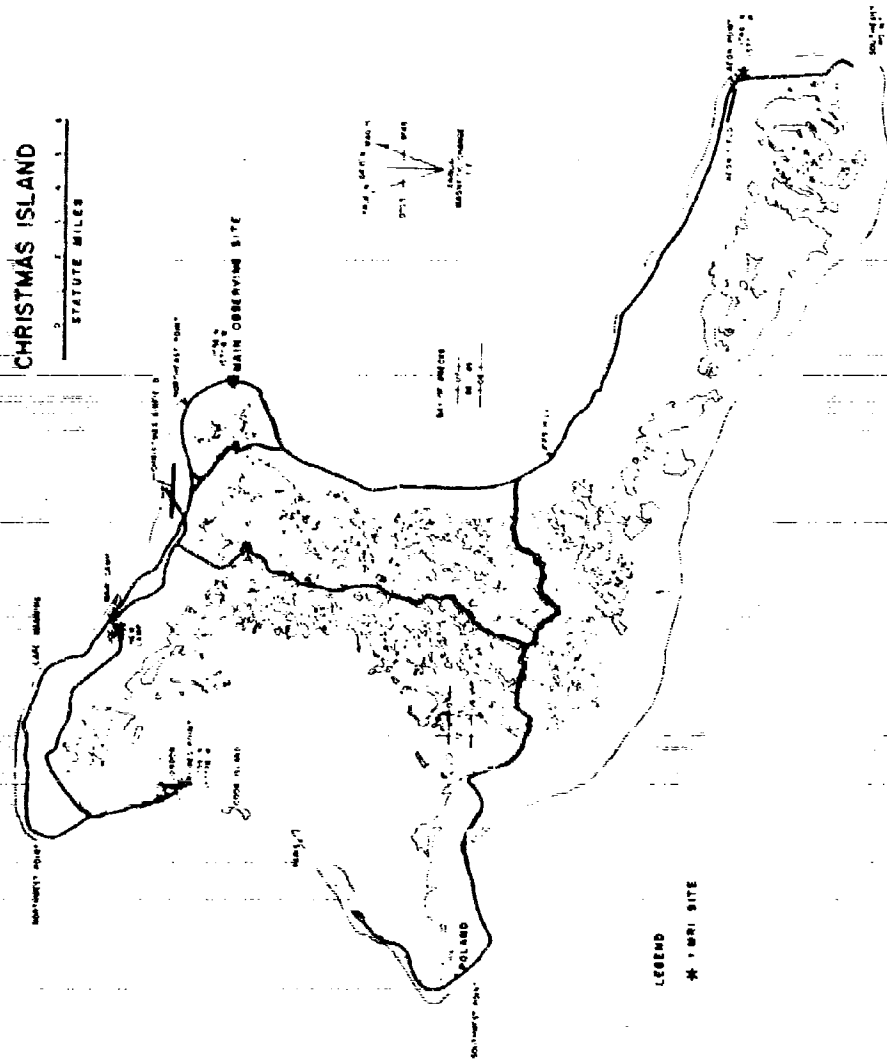


Fig. 20 Map of Christmas Island showing the four surface wind measurement sites (MRI sites). All ravin and pibal releases were from Northeast Point -- the main observing site.



Fig. 21 Aerial view of most of Christmas Island, looking somewhat east of due south from an altitude of 9,000 ft. Northeast Point extends into the ocean in the center foreground; Southeast Point is in the far left background; and the airfield shows in the right foreground. (NGAR photo)

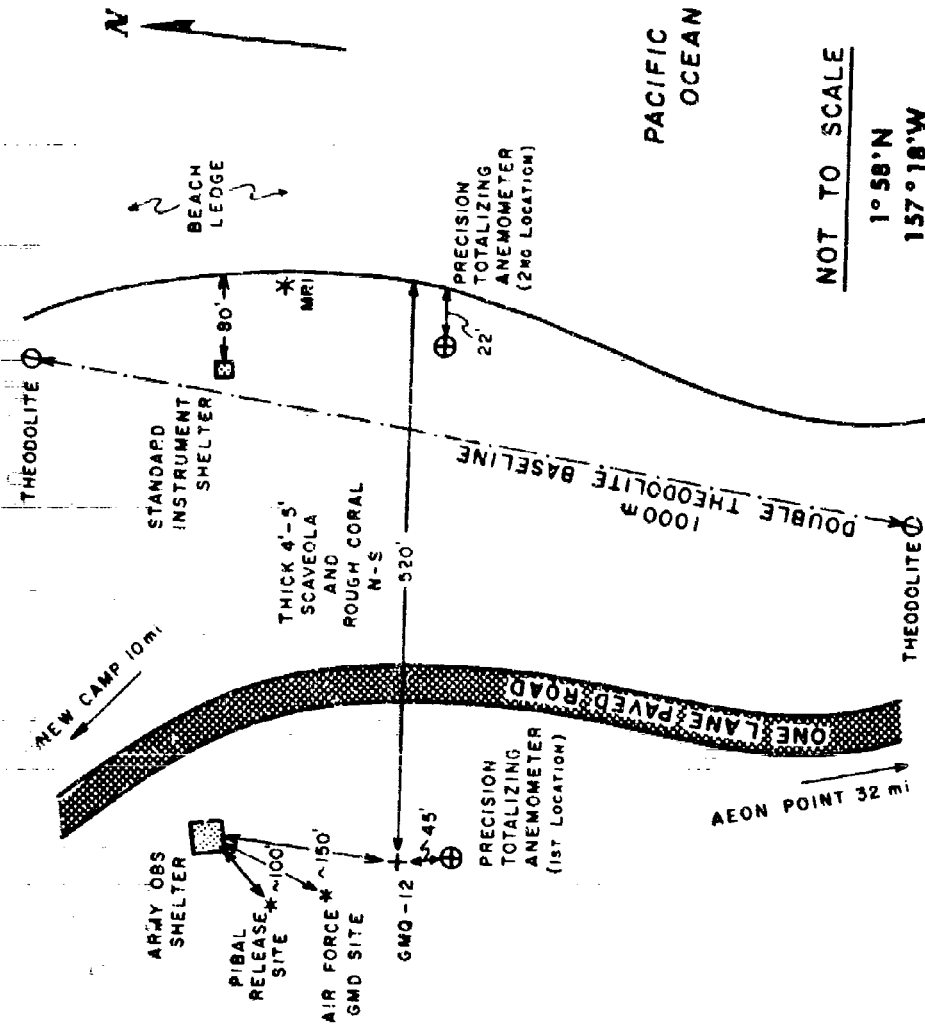


Fig. 22 Main observing area at Northeast Point, Christmas Island.
(Based on sketch by Frank Harrison)



Fig. 23 View of beach ledge looking south toward MRI set at
Northeast Point, Christmas Island. (NCAR photo)

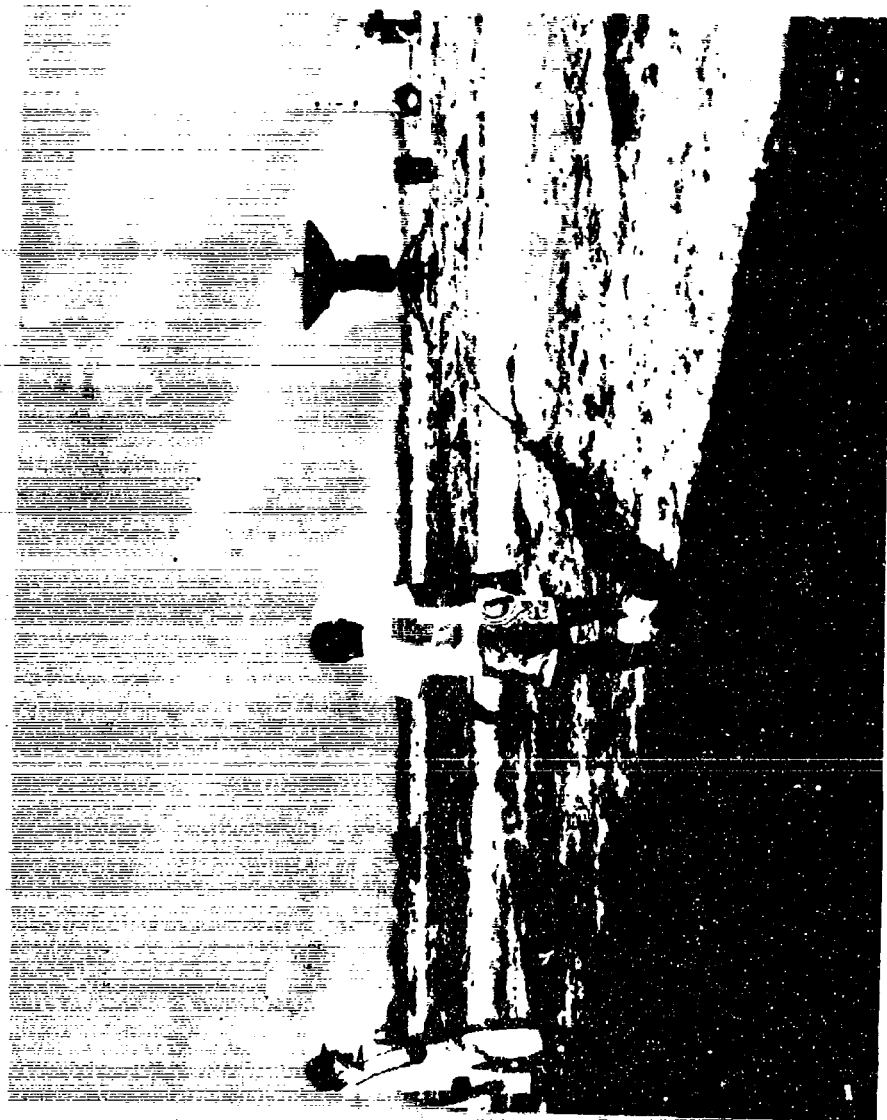


Fig. 24 U.S. Air Force CMD site at Northeast Point, Christmas Island. Tracking antenna is on right, time-lapse and still cameras on roof of shelter on left. Surface instrumentation is visible in the distance. This view is toward the east-northeast. (NCAR photo)

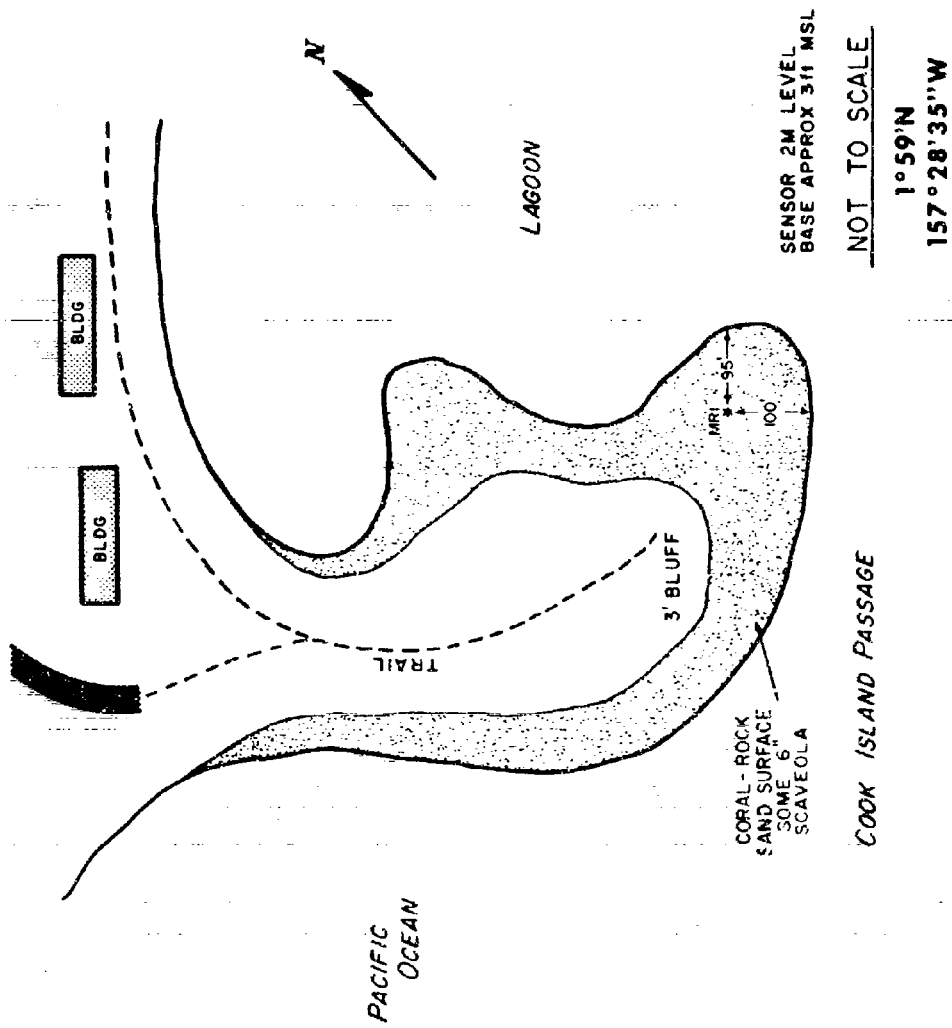


Fig. 25 Christmas Island Bridges Point (London) site. (Sketch by Frank Harrison)



Fig. 76 Conference at the Bridges Point MRI site, Christmas Island. This view is toward the north. (NCAR photo)

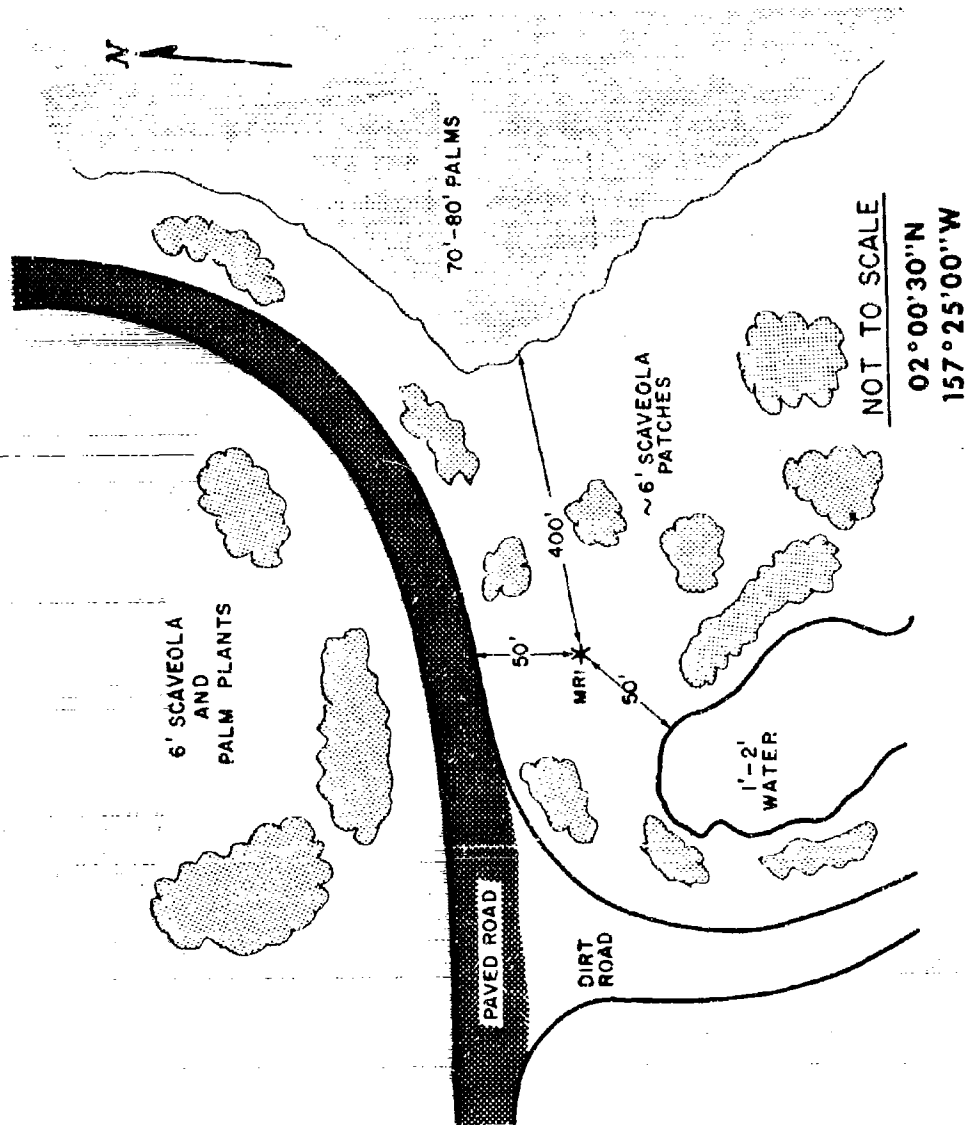


Fig. 27 Christmas Island New Camp (JOC) site. (Sketch by Frank Harrison)

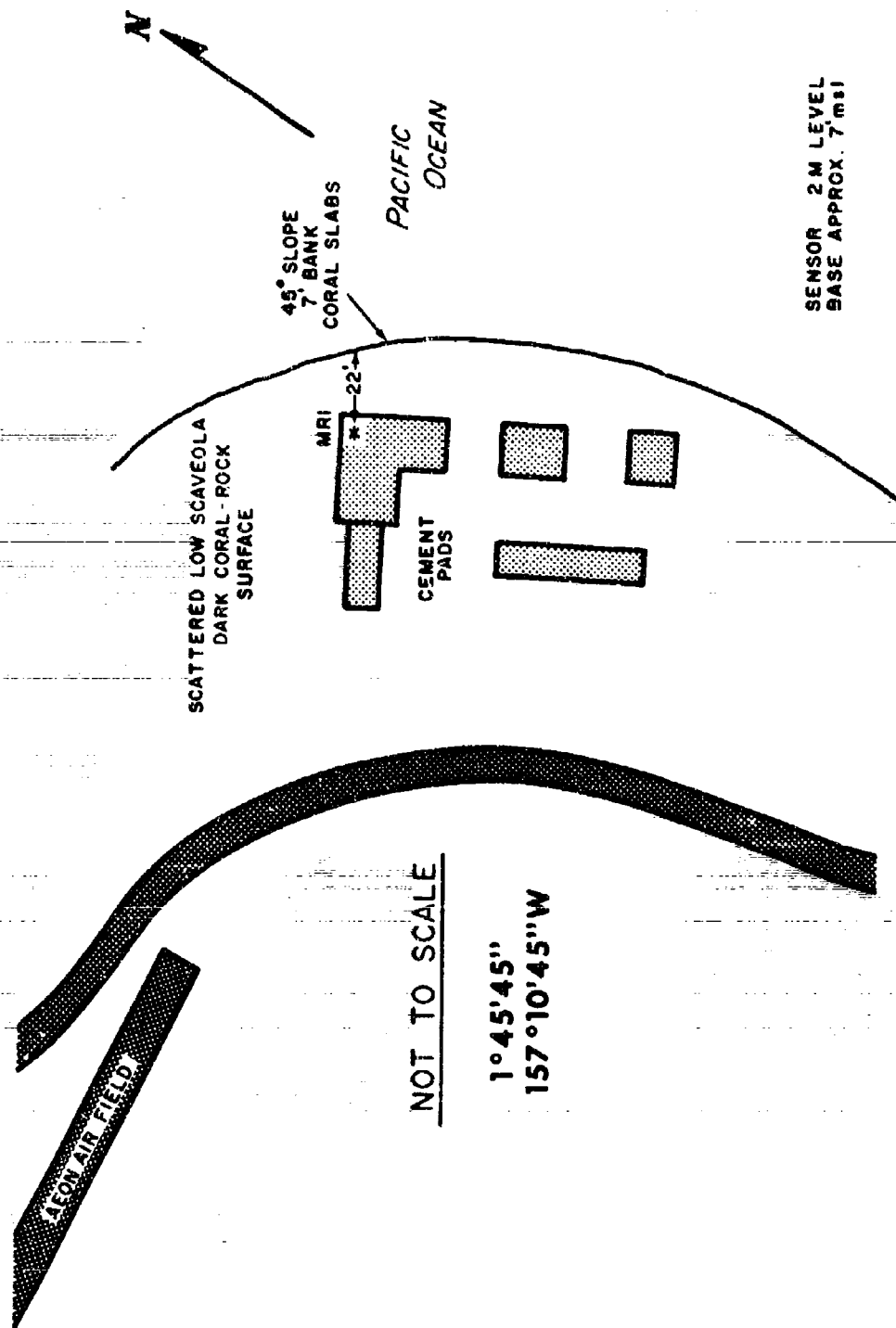


Fig. 28 Christmas Island Aeon Point (VIC 'B' Camp) site. (Sketch by Frank Harrison)

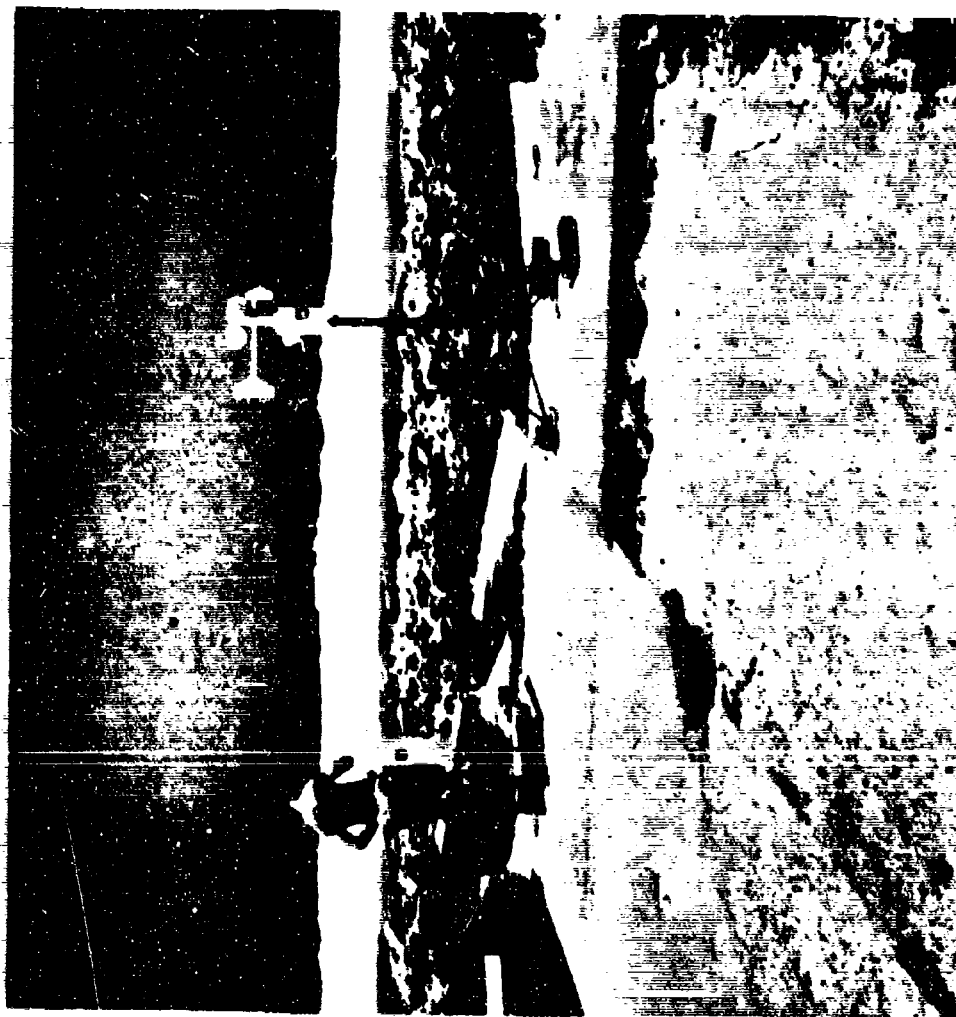


Fig. 29 Looking toward the northeast, Aeon Point, Christmas Island. (NCAR photo)



Fig. 30 *USCGC Surveyor* docked in home port of Seattle before Line Islands Experiment.
Note location of twin anemometers high on the mast. (NCAR photo)



Fig. 31 Shipboard radiosonde release on the *USCGC Surveyor*. (NCAR photo)

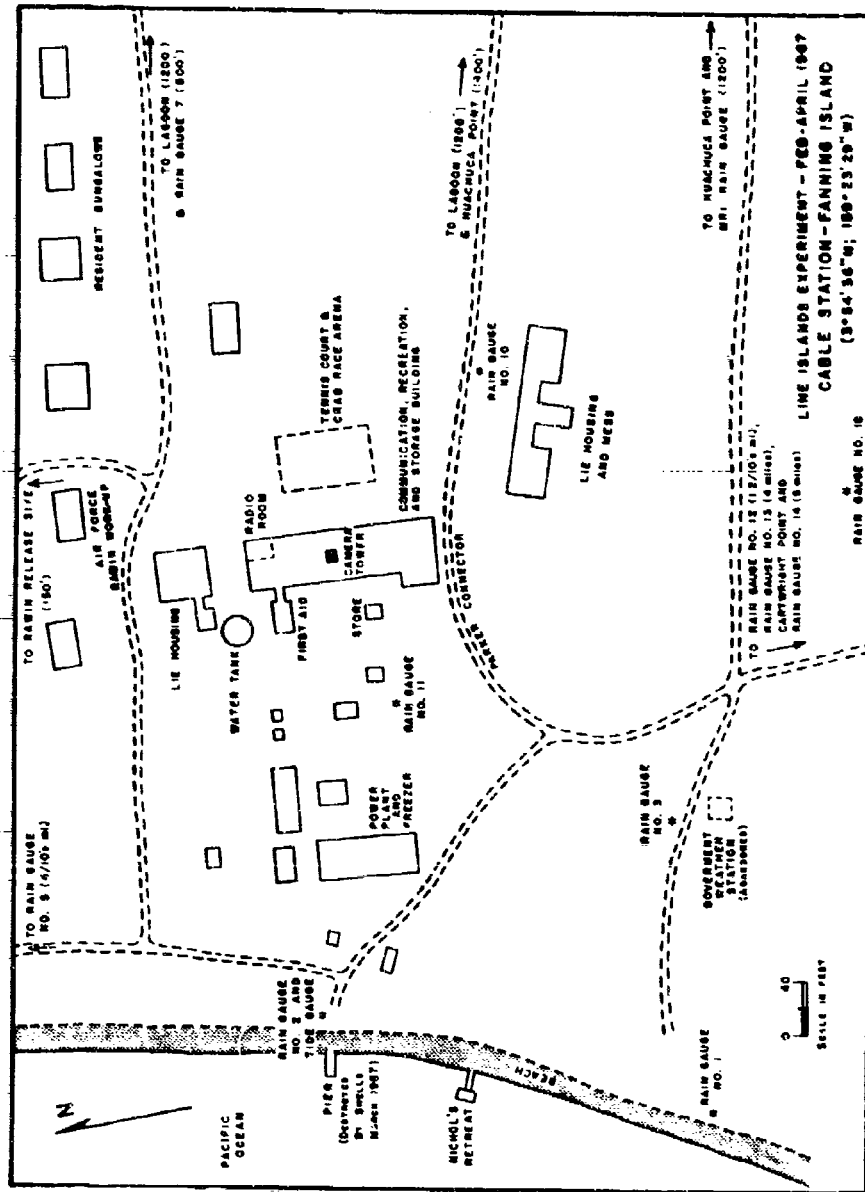


Fig. 32 West part of Cable Station showing part of micro rain-gauge network on Fanning Island. Ground-based photographs were taken from 25-ft tower atop building indicated. Rawinsondes were released from black coral field about 150 ft north of work-up shelter. (Sketch by Gerry Schaeffer and Frank Robitaille)

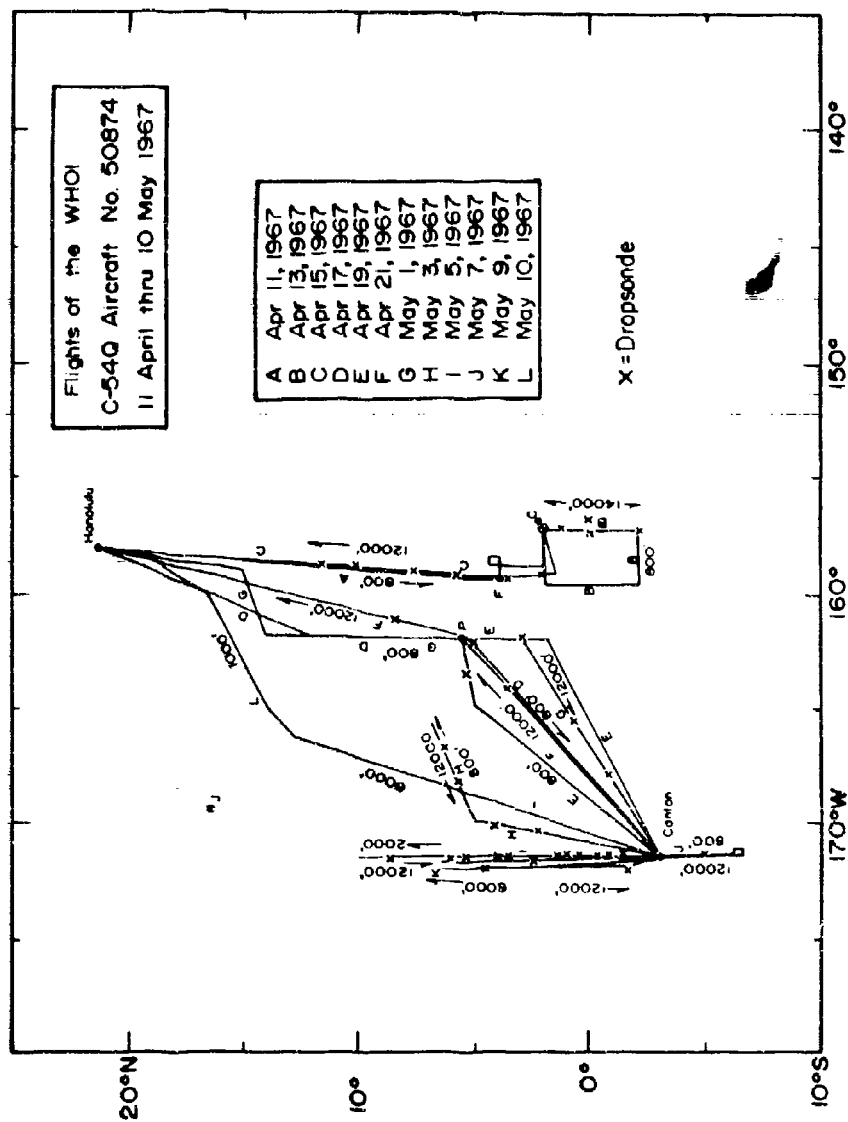


Fig. 33 Map showing tracks flown by the Woods Hole Oceanographic Institution C-540 aircraft during the Line Islands program. The black dots identified as J, P, F and C refer to Johnston, Palmyra, Fanning and Christmas Islands, respectively.

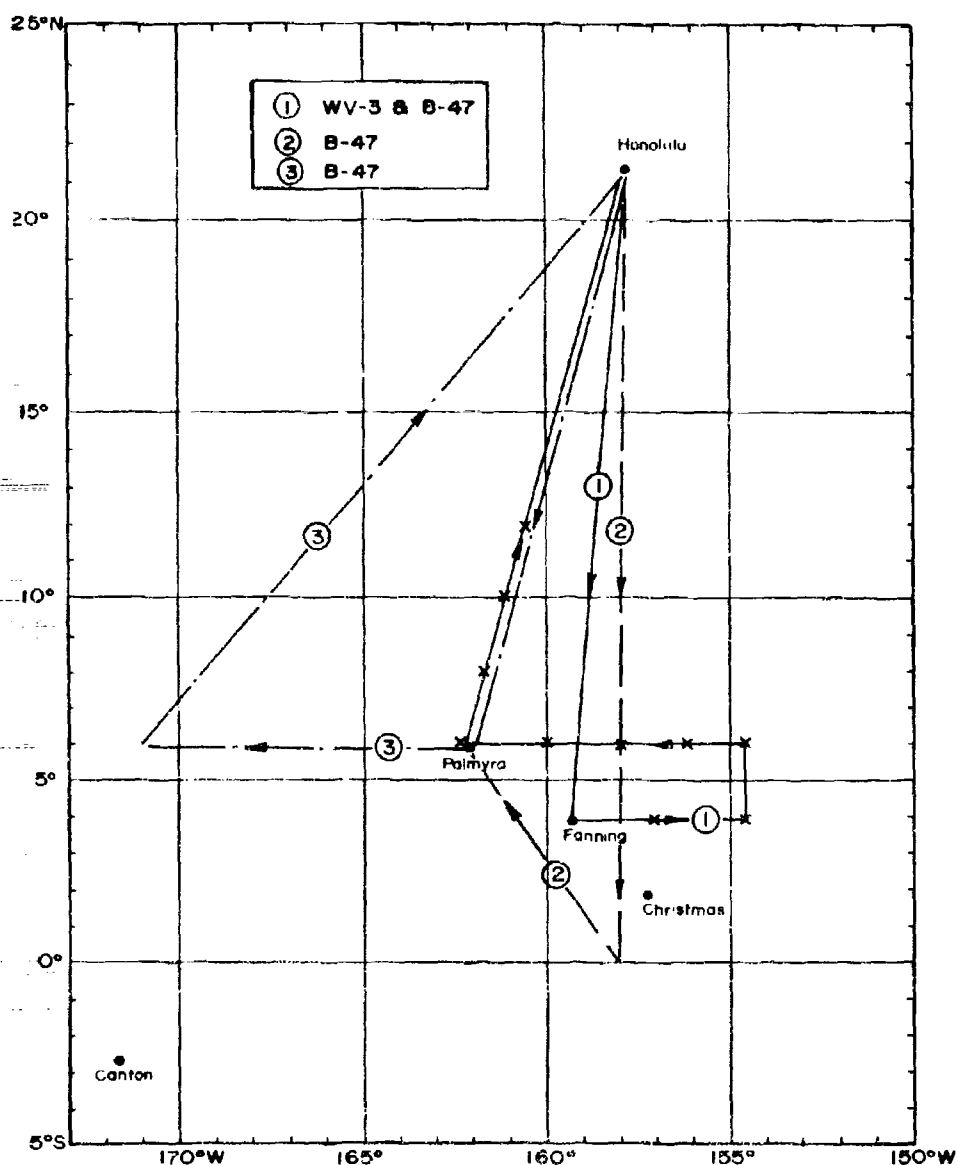


Fig. 34 Map showing tracks flown by military weather reconnaissance aircraft during the Line Islands program. The WV-3 aircraft is from the U.S. Navy VW-1 Reconnaissance Squadron. It flew to Fanning Island at an altitude of 1,000 ft, then climbed to 10,000 ft for the remainder of the track. The B-47 aircraft were from the U.S. Air Force 57th Weather Reconnaissance Squadron. Most of their tracks were flown at 300 mb (30,000 ft).



Fig. 35 Typical ATS-1 photograph taken during period of most intensive coverage. The legend identifies the day (109th day of the year -- 19 April), the year (1967), the time (203823 GMT), and the numerical sequence number (37th picture of the day).

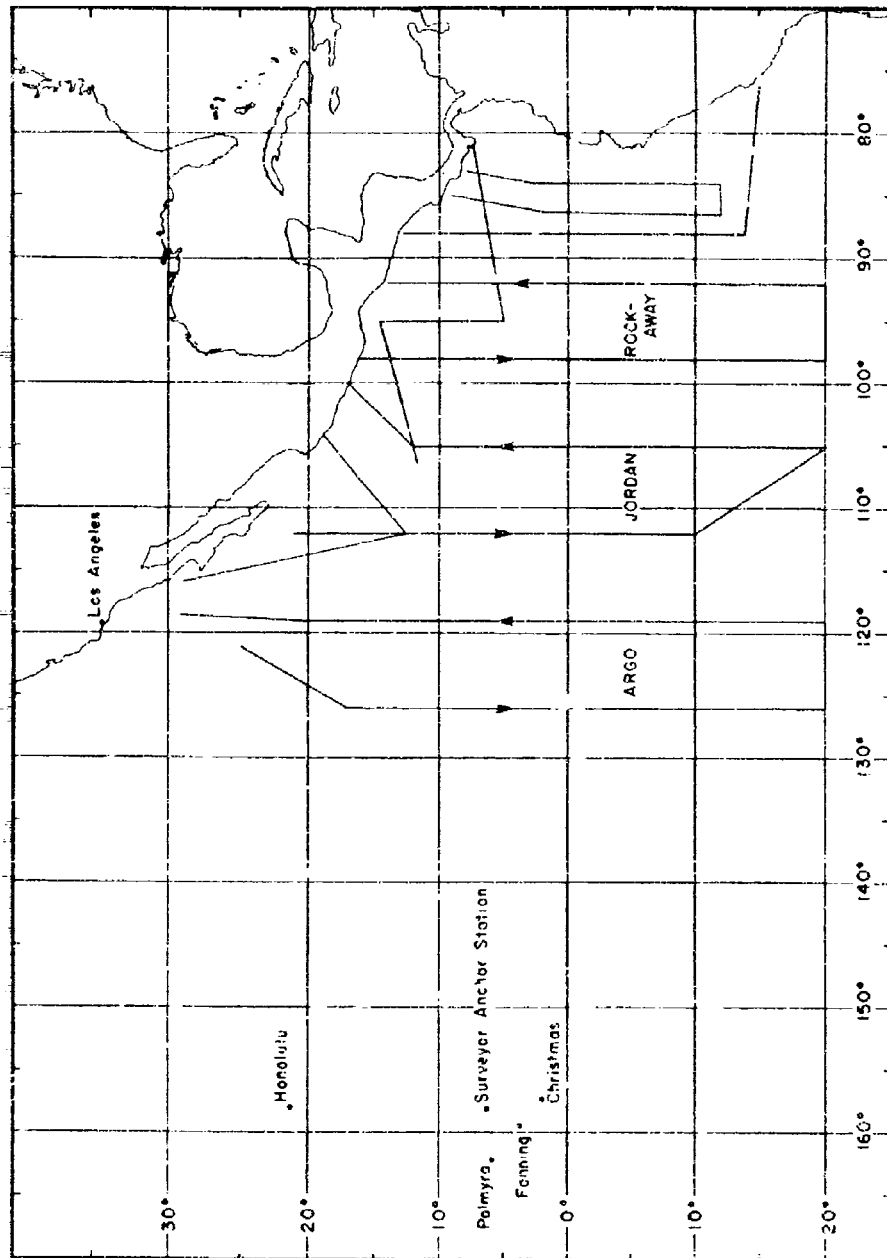


Fig. 36 Major ship tracks of the EASTROPAC program during the period of the Line Islands Experiment. The ships which are identified by name obtained upper air data.

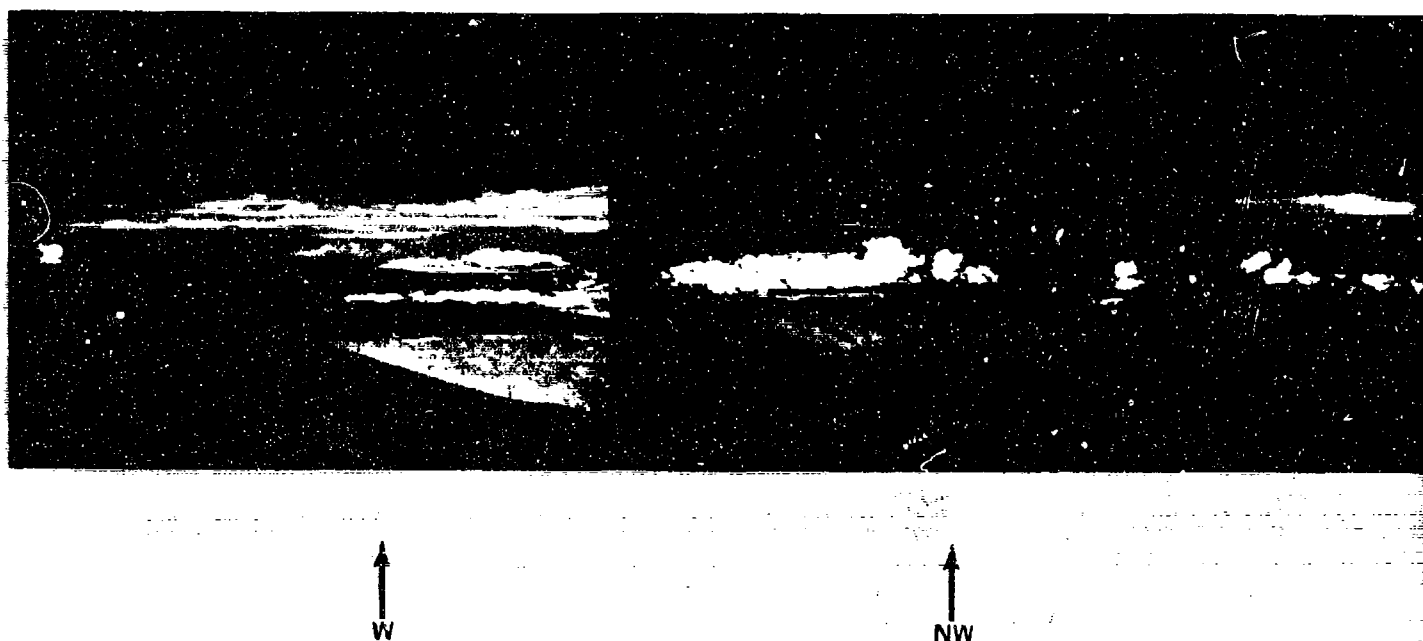
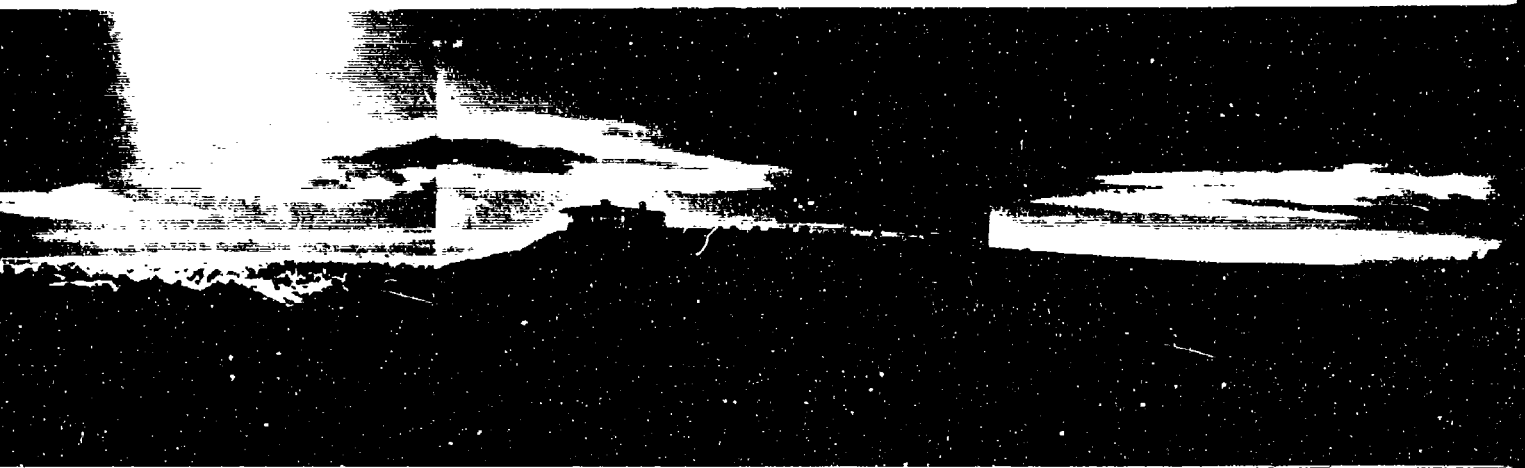


Fig. 37 Example of infrared pictures taken from the summit of Haleakela, Maui, elevation 10,000 ft, pieced together to form a 360° panorama. The observatory dome is west of the camera. To the northwest, Maui narrows to a 6-mi isthmus, behind which are the West Maui Mountains, and in the distance, the islands of Lanai and Molokai. (Photo courtesy Tetsuya Fujita and Dorothy Bradbury)

A

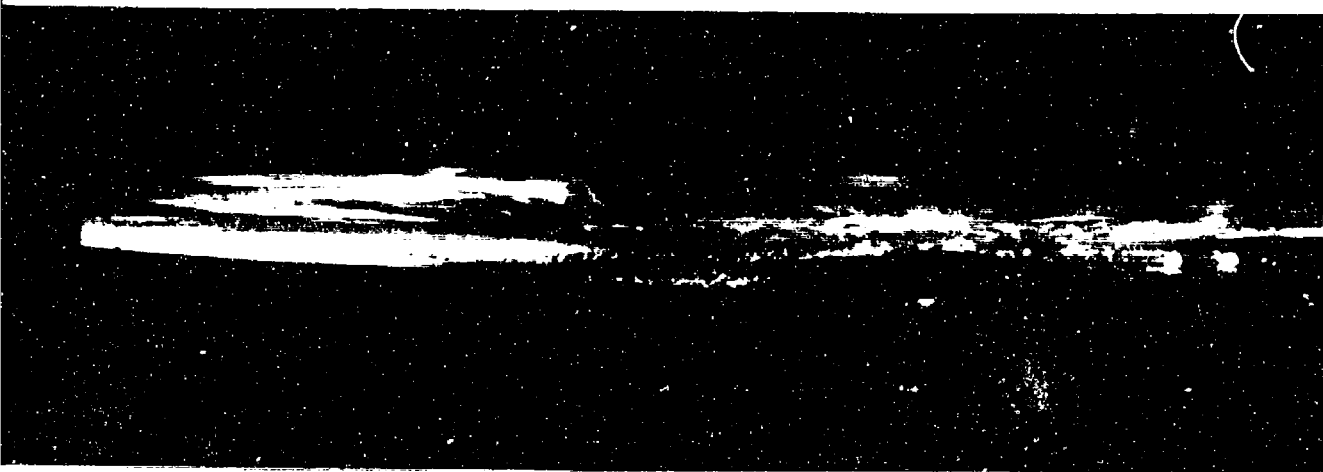


↑
E

↑
SE

↑
S

①



↑
S

↑
SW



Fig. 38 Aerial view of English Harbour area of Fanning Island from 10,000 ft. North is toward the top. Plantation housing and drying sheds are just south of the channel. Cartwright Point and Ahenca Point extend eastward into the lagoon just north of the channel. Currents in the channel (note standing waves) sometimes exceed 7 kt and are an ever-present threat to safety. Most of the supplies were unloaded near Cartwright Point and taken by truck via 6th Weather Turnpike to the Cable Station some 5 mi to the north. (Photo by Bob Kendall)



Fig. 39 Aerial view of southern approach to Cable Station, Fanning Island, taken from 10,000 ft, north toward the top. The Cable Station grounds extend across the island from ocean to lagoon. The black coral field used for rawinsonde releases is visible at the extreme top, just north of the Cable Station. Huachuca Point is the second point from the top, at the southeast extremity of the Cable Station grounds. This picture includes the area proposed for an airstrip, now crossed by the 6th Weather Turnpike. Note the refracted waves along the west coast. (Photo by Bob Kendall)



Fig. 40 Aerial view of Washington Island looking to the north. This island was not used in the Experiment because it did not afford sites with adequate exposure and because access is extremely difficult. The lake is fresh water and its level is controlled by locks near the south end of the island. (Photo by Bob Kendall)



Fig. 41 Bridges Point, Christmas Island, juts into the lagoon behind the village of London. On Christmas Eve, 1777, Captain Cook anchored *HMS Resolution* in the channel a short distance to the right of the point (see Section II). During the Line Islands Experiment, Bridges Point served as one of the four MRI sites on Christmas Island. (NCAR photo)



Fig. 42 The NCAR Queen Air prepares to take off from Palmyra.



Fig. 43 The Woods Hole Oceanographic Institution C-54Q.



Fig. 44 A U.S. Air Force B-47 flying past Diamond Head, Oahu, Hawaii. During the Line Islands Experiment, these aircraft were flown by the 57th Weather Reconnaissance Squadron.



Fig. 45 The U.S. Navy WV-3. During the Line Islands Experiment, this aircraft was flown by the VW-1 Reconnaissance Squadron.

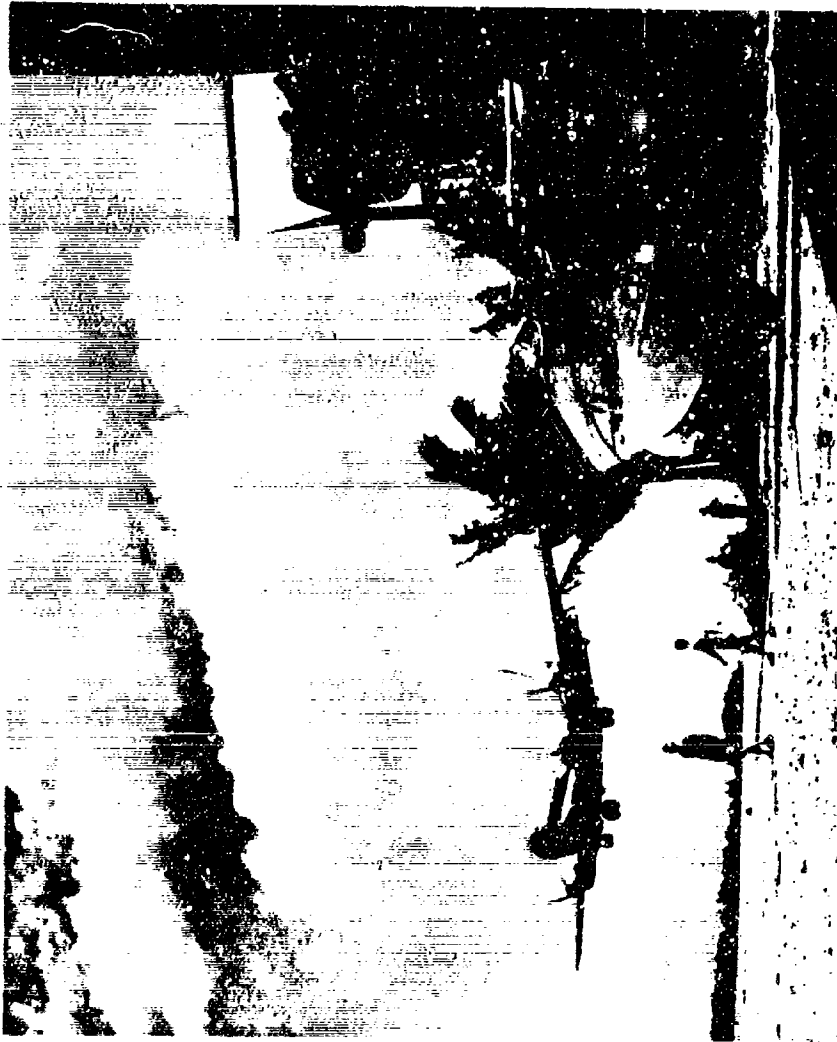


Fig. 46 The U.S. Air Force C-97 landing at Palmyra, with the PBY in the right foreground. These aircraft made weekly supply flights to Christmas and Palmyra. They were operated by the 146th MAW, Van Nuys, California, and supported by California, Arizona and Utah units of the Air National Guard. (NCAR photo)

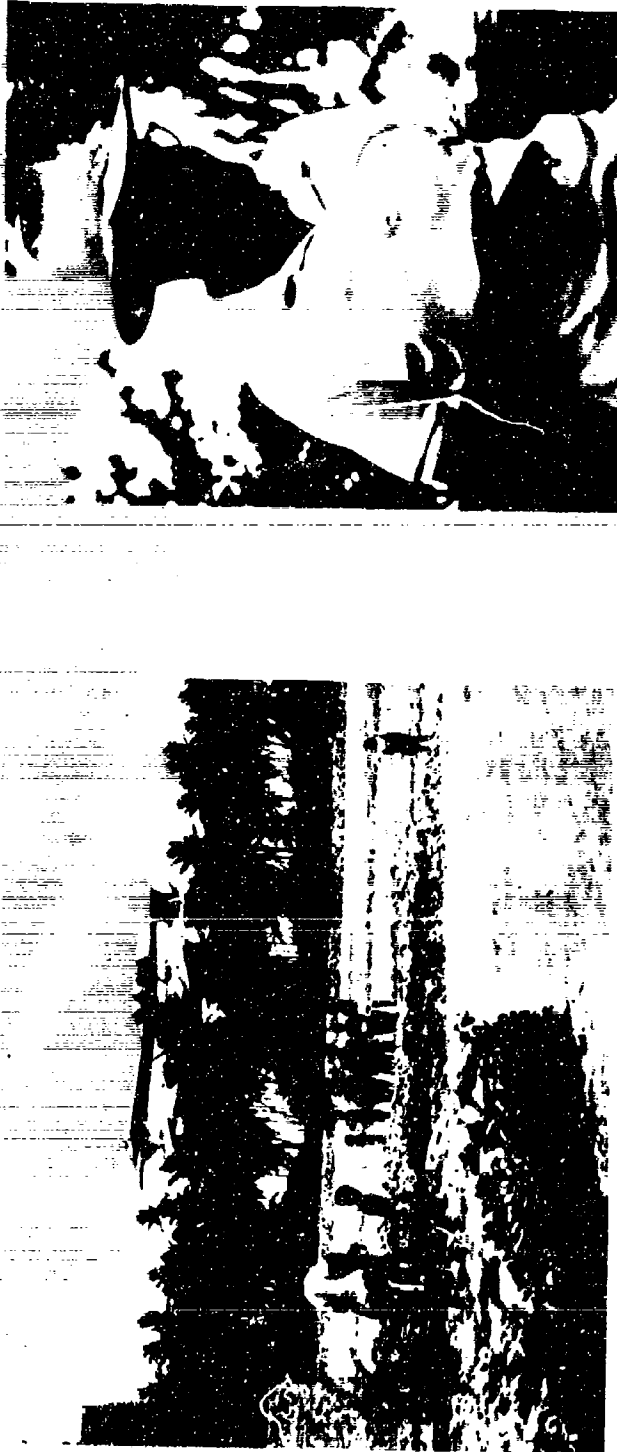


Fig. 47 The PBY 5-A, of Catalina Enterprises, Inc., on final approach to a splash landing on the Fanning lagoon. Piloted by Tom or Bob Kendall, it made sixty flights during the Line Islands Experiment. This venerable aircraft, despite the many stories that it served to generate, made the survey trip possible, brought the first personnel into the islands prior to the start of the observing program, and was the main link to Fanning Island.

Philip F. D. Palmer (right), manager of Fanning Island Plantations, Ltd., is completing his 30th year at Fanning and his 47th year in the Pacific Islands of the United Kingdom, including several years during World War II as a coast watcher in the Solomon Islands. During the Line Islands Experiment, he aided by offering food, transportation, communications and other forms of encouragement. His assistant, John Fleetwood, made the remote MRI site and lagoon sections possible, supplying his time and boat to reach this nearly inaccessible part of the island. (NCAR photo)

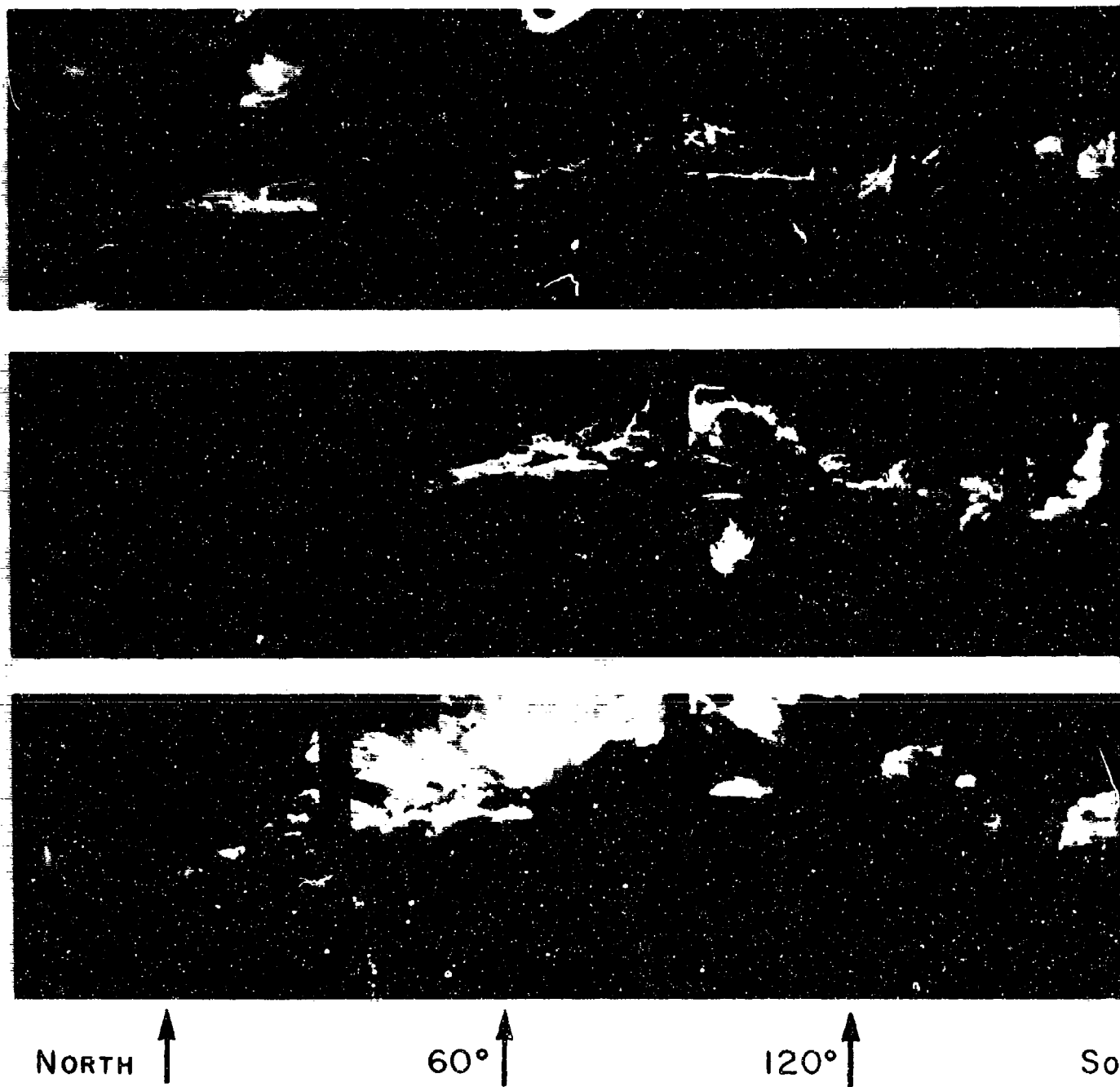
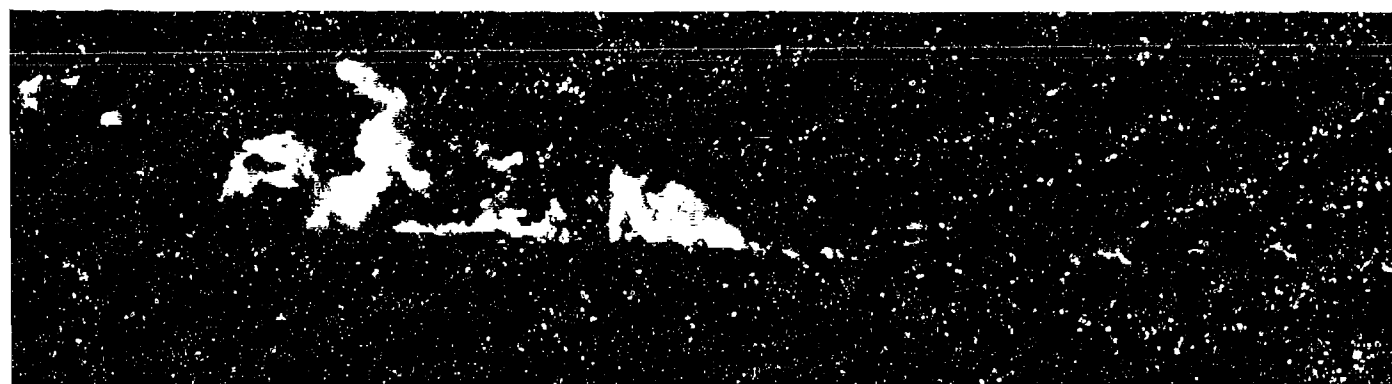
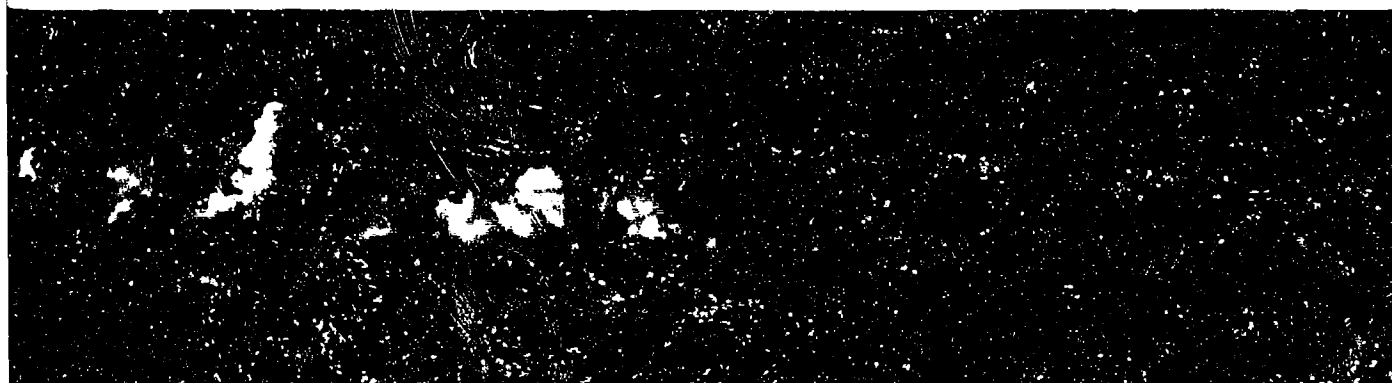
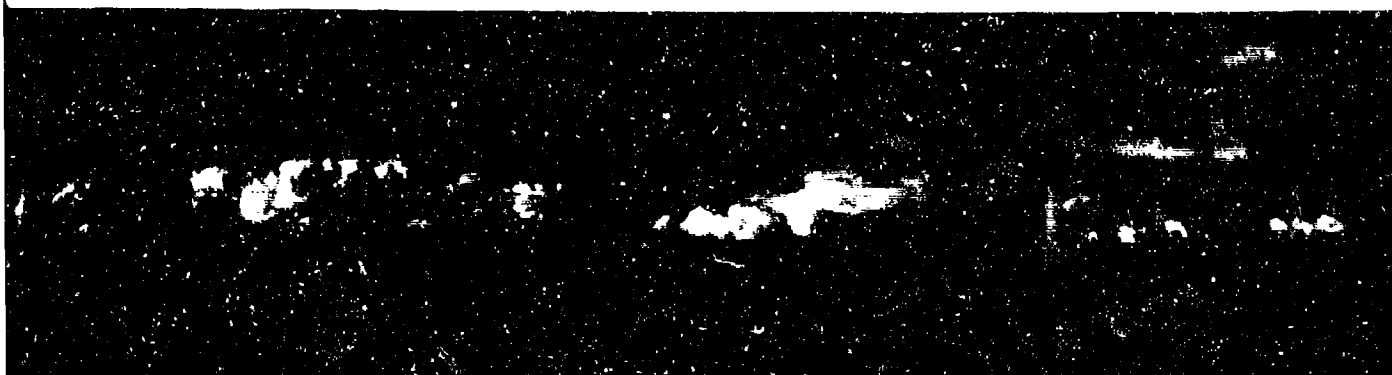


Fig. 48 Example of routine panoramic cloud photography accomplished during tower on Fanning on 19 April, at 1900, 1920 and 1930 GMT, top to bottom. The "birdhouse" shelters the Bolex cine camera. With relatively minor variations, taken every daylight hour of every day from Palmyra, Fanning, Christmas



SOUTH ↑

240° ↑

300° ↑

accomplished during the Line Islands Experiment. This view is from the photo
 d 1930 GMT, top to bottom, or 1 hr prior to the ATS-1 photograph of Fig. 35.
 . With relatively minor exceptions (see Section IV), similar panoramas were
 Imyra, Fanning, Christmas and the *USC&GSS Surveyor*. (NCAR photo)



Fig. 49 One of the two Bolex cine camera systems on Palmyra is sheltered in the "birdhouse," looking toward the west-southwest across the lagoon where a good horizon is available. Sharks often entered the small cove in the foreground. Time-lapse cloud photography from this and similar systems was accomplished from each island on most days during the program. (NCAR photo)

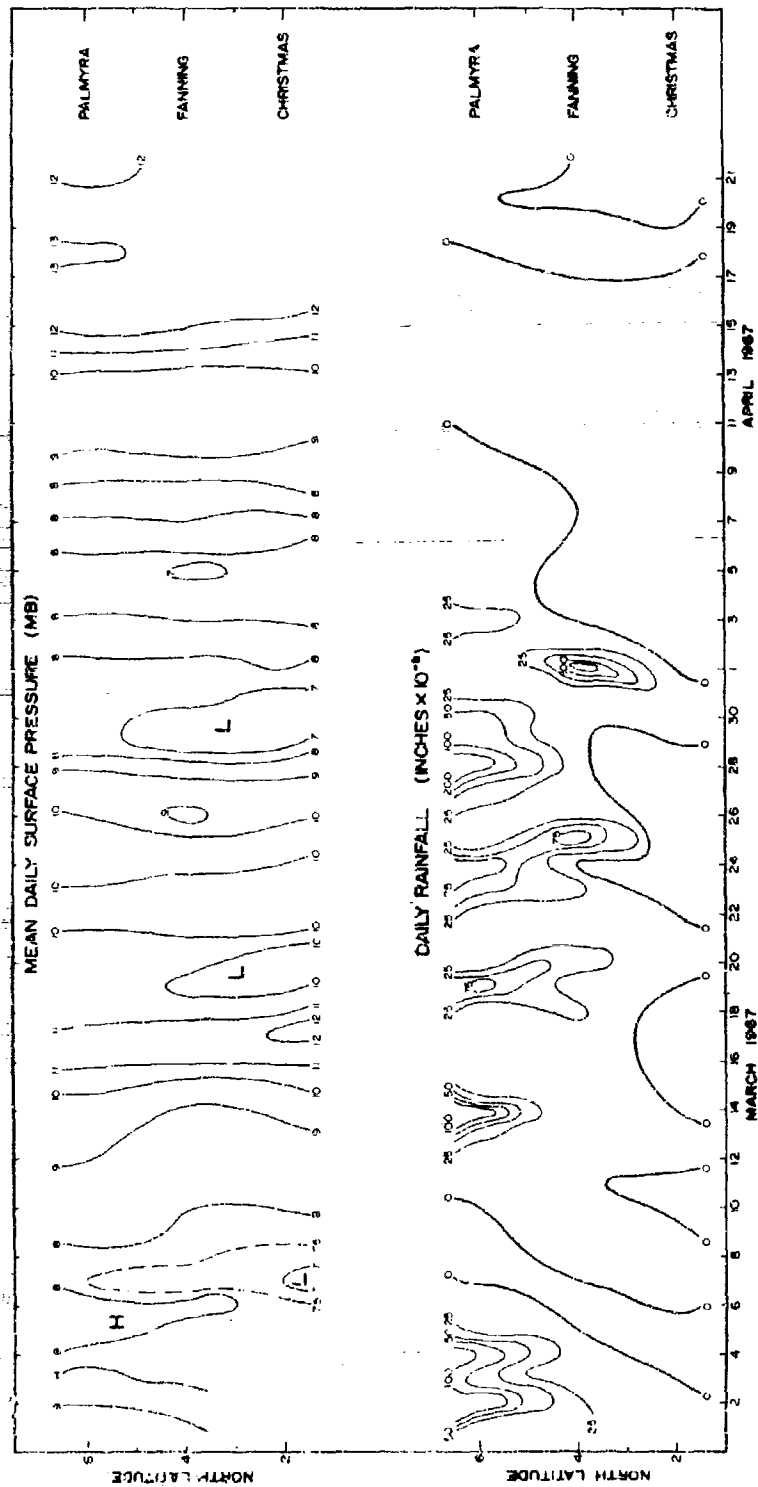


Fig. 50 Space-time analysis of mean daily surface pressure and daily rainfall from the Line Islands from 2 March through 21 April. The presentation is for convenience; the reader may arrive at his own conclusions as to correlations that may exist between the two fields.

APPENDIX A
SUMMARIES OF UPPER AIR SOUNDINGS

1. Palmyra Rawinsonde Summary 253
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14 February to 30 March 1967 262
5. Summary of Upper Air Observations: *Weather Ship II*,
13 March to 28 April 267

Appendix A1

PALMYRA RAWINSONDE SUMMARY

Asc. No.	Date	Release Time	Asc. No.	Date	Release Time
1	25 Feb.	0035 GMT	48	8 Mar.	1728 GMT
2	25	1258	49	8	2040
3	26	0017	50	8	2315
4	26	1200	51	9	0217
5	27	0001	52	9	0600
6	27	1200	53	9	0855
7	28	0000	54	9	1125
8	28	0714	55	9	1814
9	28	1147	56	10	0000
10	28	1815	57	10	0600
			58	10	1135
11	1 Mar.	0148	59	10	1500
12	1	0550	60	10	1750
13	1	1300	61	10	2023
14	1	1750	62	10	2335
15	1	2315	63	11	0325
16	2	0520	64	11	0555
17	2	1115	65	11	0835
18	2	1750	66	11	1115
19	3	0000	67	11	1810
20	3	0530	68	12	0000
21	3	1130	69	12	0312
22	3	1500	70	12	0535
23	3	1800	71	12	1155
24	3	2043	72	12	1810
25	3	2332	73	12	2351
26	4	0300	74	13	0555
27	4	0515	75	16	0255
28	4	0900	76	16	0535
29	4	1130	77	16	1130
30	4	1800	78	16	1445
31	4	2335	79	17	0900
32	5	0535	80	17	1213
33	5	1150	81	17	1807
34	5	1835	82	18	0000
35	6	0012	83	18	0553
36	6	0605	84	18	1229
37	6	1115	85	18	1450
38	6	1500	86	18	1820
39	6	1800	87	18	2023
40	6	2150	88	18	2315
41	6	2340	89	19	0310
42	7	0350	90	19	0600
43	7	0542	91	19	0904
44	7	0850	92	19	1145
45	7	1115	93	19	1805
46	8	1135	94	20	2320
47	8	1528	95	20	0625

Asc. No.	Date	Release Time	Asc. No.	Date	Release Time
96	20 Mar.	1115 GMT	143	29 Mar.	2046 GMT
97	20	1447	144	30	0320
98	20	1755	145	30	0603
99	20	2100	146	30	0910
100	20	2325	147	30	1200
101	21	0235	148	30	1831
102	21	0600	149	31	0008
103	21	0855	150	31	2331
104	21	1210			
105	21	1805	151	1 Apr.	0655
106	22	0350	152	1	1145
107	22	0700	152*	1	1500
108	22	1200	153	1	1800
109	22	1529	154	1	2050
110	22	1750	155	1	2353
111	22	2040	156	2	0250
112	23	0150	157	2	0605
113	23	0830	158	2	0905
114	23	1115	159	2	1123
115	23	1445	160	2	1917
116	23	1830	160-A	2	2358
117	23	2050	161	3	0610
118	23	2358	162	3	1150
119	24	0307	163	3	1450
120	24	0645	164	3	1810
121	24	0915	165	3	2100
122	24	1155	166	3	2353
123	24	1847	167	4	0312
124	25	0045	168	4	0617
125	25	0600	169	4	0905
126	25	1125	170	4	1115
127	25	1818	171	5	1900
128	25	2337	172	5	2332
129	26	0620	173	5	0553
130	26	1115	174	6	1115
131	26	2350	175	6	1511
132	27	0552	176	6	1856
133	27	1150	177	6	2050
134	28	0135	178	6	2349
135	28	0608	179	7	0416
136	28	1323	180	7	0659
137	28	1908	181	7	0915
138	28	2347	182	7	1138
139	29	0600	183	7	1814
140	29	1121	184	8	0051
141	29	1438	185	8	0545
142	29	1808	186	8	1138

* 152 entered twice on original forms.

Asc. No.	Date	Release Time	Asc. No.	Date	Release Time
187	8 Apr.	1714 GMT	231	18 Apr.	1755 GMT
188	8	1920	232	18	2339
189	8	2240	233	19	1557
190	9	0316	234	19	1210
191	9	0522	235	19	1704
192	9	1115	236	19	1937
193	9	1810	237	19	2328
194	9	2326	238	20	0200
195	10	0555	239	20	0705
196	10	1123	240	20	1143
197	10	1740	241	20	1740
198	10	1932	242	20	2324
199	10	2232	243	21	0612
200	11	0123	244	21	1142
201	11	0558	245	21	1728
202	11	1142	246	21	1930
203	11	1838	247	21	2231
204	11	2321			
205	12	0600			
206	12	1137			
207	12	1804			
208	13	1150			
209	13	1713			
210	13	1935			
211	13	2233			
212	14	0125			
213	14	0543			
214	14	1115			
215	14	1814			
216	14	2344			
217	15	0607			
218	15	1147			
219	15	1717			
220	15	1915			
221	15	2240			
222	16	0115			
223	16	0554			
224	16	1148			
225	17	1736			
226	17	1921			
227	17	2304			
228	18	0137			
229	18	0543			
230	18	1147			

Appendix A2

FANNING ISLAND RAWINSONDE SUMMARY

Asc. No.	Date	Release Time	Asc. No.	Date	Release Time
1	2 Mar.	1220 GMT	45	11 Mar.	2353 GMT
2	3	0700	46	12	0235
3	3	1235	47	12	0600
4	3	1510	48	12	1150
5	3	1800	49	12	1800
6	3	2100	50	12	2345
7	4	0100	51	13	0600
8	4	0315	52	13	1242
9	4	0600	53	13	1745
10	4	0845	54	14	0010
11	4	1145	55	14	0250
12	4	1805	56	14	0610
13	4	2345	57	14	1155
14	5	0815	58	14	1745
15	Missing		58	14	1800
16	5	1215	59	14	2130
17	5	1855	60	15	0000
18	6	0000	61	15	0300
19	6	0610	62	15	0556
20	6	1200	63	15	0851
21	6	1825	64	15	1121
22	7	0000	65	15	1750
23	7	2110	66	16	0000
24	7	0300	67	16	0550
25	7	0850	68	16	1240
26	7	1200	69	16	1500
26A	7	1430	70	16	1755
27	8	0005	71	16	2045
28	8	0538	72	16	2345
29	8	1503	73	17	0240
30	8	1840	74	17	0534
31	9	0249	75	17	0825
32	9	0605	76	17	1119
33	9	0930	77	17	1745
34	9	1240	78	18	0000
35	10	1200	79	18	0728
36	10	1441	80	18	1308
37	10	1800	81	18	1644
38	10	1745	82	18	1835
39	10	2345	83	18	2100
40	11	0300	84	19	0000
41	11	0600	85	19	0240
42	11	0900	86	19	0605
43	11	1137	87	19	0905
44	11	1925	88	19	1115

Asc. No.	Date	Release Time	Asc. No.	Date	Release Time
89	19 Mar.	1800 GMT	133	27 Mar.	1754 GMT
90	20	0007	134	27	2348
91	20	0545	135	28	0600
92	20	1138	136	28	1145
93	20	1530	137	28	1826
94	20	1900	138	28	2350
95	20	2055	139	29	0550
96	20	2330	140	29	1215
97	21	0245	141	29	1500
98	21	0601	142	29	1810
99	21	0920	143	29	2040
100	21	1201	144	29	2356
101	21	1743	145	30	0314
102	21	2338	146	30	0630
103	22	0555	147	30	0845
104	22	1145	148	30	1212
105	22	1500	149	30	1745
106	22	1812	150	31	0004
107	22	2040	151	31	0555
108	23	0000			
109	23	0300	152	1 Apr.	1321
110	23	0550	153	1	1637
111	23	0850	154	1	1835
112	23	1200	155	1	2055
113	23	1455	156	1	2320
114	23	1751	157	2	0230
115	23	2030	158	2	0529
116	24	0020	159	2	0829
117	24	0255	160	2	1126
118	24	0600	161	2	1730
119	24	1215	162	2	2320
120	24	1802	163	3	0542
121	25	0100	164	3	1214
122	25	0615	165	3	1529
123	25	1239	166	3	1745
124	25	1520	167	3	2025
125	25	1815	168	3	2350
126	25	2135	169	4	0243
127	25	2334	170	4	0540
128	26	0704	171	4	0909
129	26	0950	172	4	1140
130	27	0153	173	4	1745
131	27	0600	174	4	2330
132	27	1155	175	5	0630

Asc. No.	Date	Release Time	Asc. No.	Date	Release Time
176	5 Apr.	1115 GMT	220	14 Apr.	0145 GMT
177	5	1800	221	14	0515
178	5	2325	222	14	1147
179	6	0607	223	14	1756
180	6	1213	224	15	0014
181	6	1514	225	15	0555
182	6	1804	226	15	1256
183	6	2130	227	15	1727
184	6	2325	228	15	2038
185	7	0225	229	15	2304
186	7	0620	230	16	0214
187	7	0955	231	16	0525
188	7	1205	232	16	1155
189	7	1804	233	16	1900
190	7	2325	234	16	2327
191	8	0604	235	17	0602
192	8	1315	236	17	1239
193	8	1700	237	17	1715
194	8	2004	238	17	1945
195	8	2315	239	17	2300
196	9	0130	240	18	0144
197	9	0508	241	18	0500
198	9	1200	242	18	1159
199	9	1734	243	18	1810
200	9	2332	244	18	2357
201	10	0614	245	19	0556
202	10	0630	246	19	1239
203	10	1745	247	19	1730
204	10	1956	248	19	1950
205	10	2305	249	19	2330
206	11	0207	250	20	0200
207	11	0612	251	20	0527
208	11	1137	252	20	1216
209	11	1738	254	20	1802
210	11	2010	254	20	2355
211	11	2238	255	21	0515
212	12	0150	256	21	1312
213	12	0504	257	21	1725
214	13	0008	258	21	1955
215	13	0600	259	21	2325
216	13	1240			
217	13	1757			
218	13	1950			
219	13	2310			

Appendix A1

CHRISTMAS ISLAND RAWINSONDE SUMMARY

Asc. No.	Date	Release Time	Asc. No.	Date	Release Time
1	5 Mar.	0705 GMT	46	14 Mar.	2030 GMT
2	5	1210	47	15	0000
3	5	1830	48	15	0315
4	6	0008	49	15	0530
5	6	1240	50	15	0845
6	6	1805	51	15	1205
7	7	0000	52	15	1800
8	7	0655	53	16	0005
9	7	0935	54	16	0555
10	7	1220	55	16	1210
11	7	2015	56	16	1532
12	8	0125	57	16	1831
13	8	0710	58	16	2030
14	8	1230	59	17	0013
15	8	1525	60	17	0300
16	8	1800	61	17	0547
17	8	2127	62	17	1145
18	9	0505	63	17	1750
19	9	0300	64	18	0000
20	9	0623	65	18	0531
21	9	0925	66	18	1255
22	9	1145	67	18	1740
23	9	1800	68	18	2035
24	10	0000	69	19	2343
25	10	0602	70	19	0255
26	10	1135	71	19	0605
27	10	1450	72	19	0900
28	10	1732	73	19	1220
29	10	2055	74	19	1740
30	11	0010	75	19	2350
31	11	0304	76	20	0601
32	11	0600	77	20	1200
33	11	0835	78	20	1500
34	11	1200	79	20	1730
35	12	0620	80	20	2030
36	12	1200	81	20	2350
37	12	1840	82	21	0300
38	13	1800	83	21	0630
39	14	0030	84	21	0910
40	14	0315	85	21	1424
41	14	0620	86	21	1800
42	14	0845	87	22	0020
43	14	1225	88	22	0615
44	14	1500	89	22	1250
45	14	1730	90	22	1515

Asc. No.	Date	Release Time	Asc. No.	Date	Release Time
91	22 Mar.	1800 GMT	130	30 Mar.	1755 GMT
92	22	2120	131	31	0002
93	23	0030	132	31	0655
94	23	0300	133	31	1200
95	23	0600	134	31	1744
96	23	0900			
97	23	1145	135	1 Apr.	0001
98	23	1500	136	1	0600
99	23	1745	137	1	1205
100	23	2039	138	1	1505
101	24	0007	139	1	1756
102	24	0300	140	1	2035
103	24	0900	141	1	2348
104	24	1200	142	2	0300
105	24	1750	143	2	0550
106	25	0001	144	2	0850
107	25	0600	145	2	1206
108	25	1205	146	2	1841
109	25	1736	147	2	2346
110	25	2140	148	3	0605
111	27	0010	149	3	1229
112	27	0635	150	3	1445
113	27	1150	151	3	1744
114	27	2006	152	3	2034
115	27	2350	153	4	0015
116	28	0545	154	4	0310
117	28	1155	155	4	0730
118	28	1500	156	4	1146
119	28	1750	157	4	1439
120	28	2100	158	4	1743
121	29	0000	159	4	2345
122	29	0250	160	5	0650
123	29	0600	161	5	1200
124	29	0900	162	5	1455
125	29	1200	163	5	1805
126	29	1750	164	6	0005
127	30	0000	165	6	0540
128	30	0600	166	6	1223
129	30	1220	167	6	1500

Asc. No.	Date	Release Time	Asc. No.	Date	Release Time
168	6 Apr.	1800 GMT	207	14 Apr.	1211 GMT
169	6	2030	208	14	1530
170	7	0025	209	14	1800
171	7	0303	210	15	2350
172	7	0555	211	15	0606
173	7	0835	212	15	1155
174	7	1211	213	15	1700
175	7	1500	214	15	1935
176	7	1800	215	15	2308
177	7	2335	216	16	0203
178	8	0544	127	16	0500
179	8	1217	128	16	1216
180	8	1650	219	16	1800
181	8	1930	220	16	2345
182	8	2346	221	17	0545
183	9	0210	222	17	1345
184	9	0725	223	17	1645
185	9	1200	224	17	1940
186	10	0540	225	17	2236
187	10	1151	226	18	0131
188	10	1643	227	18	0501
189	10	1933	228	18	1207
190	10	2250	229	18	1805
191	11	0142	230	18	2340
192	11	0500	231	19	0545
193	11	1133	232	19	1149
194	11	1732	233	19	1700
195	11	2345	234	19	2039
196	12	0532	235	19	2246
197	12	1205	236	20	0140
198	12	1742	237	20	0505
199	13	0008	238	20	1215
200	13	0535	239	20	1745
201	13	1154	240	20	2340
202	13	1714	241	21	0556
203	13	2034	242	21	1210
204	13	2235	243	21	1700
205	14	0140	244	21	2000
206	14	0512	245	21	2237

Appendix A4

SUMMARY OF UPPER AIR OBSERVATIONS: USCGC SURVEYOR, 14 FEBRUARY TO 10 MARCH 1967

Date	Time	Position	Inflation Height		Remarks
			Radioonde (m or mb)	Winds (m)	
14 Feb.	2300 GMT	16.5N 158.1W	25,330	510	Into the sea No signal after release
15	1200	No observation			
15	2300	No observation			Into the sea Leaking balloon Battery failure Battery failure
16	0000	11.9 158.0	15,830	1120	
16	1100	No observation			Radioonde failure
16	1200	10.0 158.0	6,529	1650	
16	2300	8.0 157.9	18,521	710	Radioonde failure
17	1100	5.9 158.2	16,719	3700	
17	2300	5.9 161.1	35,766	1510	Radioonde failure
18	1100	5.9 162.1	29,713	2200	
18	2300	5.9 162.2	32,616	4200	Radioonde failure
19	1200	5.9 162.2	30,990	2450	
19	2300	5.9 162.2	34,679	2500	Radioonde failure
20	1100	5.9 162.2	23,927	2650	
20	2300	5.9 162.2	35,813	1400	Radioonde failure
21	1100	5.9 161.8	9,542	1300	
21	2300	4.6 160.7	33,541	4420	Radioonde failure
22	1200	4.0 159.7	35,303	2310	
22	2300	3.8 159.4	32,001	1250	Radioonde failure
23	1100	3.8 159.4	35,473	--	
23	2300	3.8 159.4	16,010	1390	Radioonde failure
24	1200	3.8 159.4	35,633	1000	
24	1700	3.8 159.4	6 mb	--	Radioonde failure
24	2300	3.8 159.4	34,657	1260	
25	0500	4.0 159.0	32 mb	--	Radioonde failure
25	1200	3.8 158.3	33,258	720	
25	1700	3.3 157.2	5 mb	--	Radioonde failure
25	2300	3.0 156.0	35,912	740	
26	0500	2.2 156.0	154 mb	--	Radioonde failure
26	1200	1.7 156.0	33,262	--	
26	1700	0.5N 156.0	22 mb	--	Radioonde failure
27	0600	0.5S 156.0	22,903	1690	
27	0600	1.2 156.0	7 mb	--	Radioonde failure

Date	Time	Position	Termination Height Radiosonde (m or mb)	Winds (z)	Remarks
27 Feb.	1200 GMT	2.2S 156.0W	31,604	1030	
27	1900	3.0 156.8	21 mb	--	
27	2300	2.9 157.5	19,131	760	
28	0500	1.7 157.6	140 mb	1100	
28	1200	0.4 158.4	35,738	770	
28	1800	No observation	--	--	Into the sea
28	2300	1.1S 157.5	16,554	900	
1 Mar.	0100	1.7N 157.8	5 mb	1020	
1	0400	0.4S 157.5	5 mb	--	
1	0700	0.0 157.5	5 mb	--	
1	1000	0.5N 157.5	45 mb	1700	
1	1200	0.9 157.5	12,644	1300	
1	1700	1.7 157.4	4 mb	1300	
2	0000	1.8 157.8	23,413	1760	
2	0200	2.0 157.5	7 mb	1000	
2	0400	2.2 157.5	14 mb	2530	
2	1300	4.7 157.7	8,843	--	
2	1800	5.3 158.0	11 mb	--	Rain
3	0000	6.5 158.1	31,776	--	Rain
3	0600	7.0 158.0	14 mb	--	
3	1100	8.2 158.0	18,372	2290	
3	1400	9.3 158.1	190 mb	750	
3	1900	9.8 158.1	9 mb	3500	
3	2100	10.5 158.1	13 mb	6530	
3	2300	11.7 158.1	32,712	1550	
4	0200	11.3 158.2	7 mb	1100	
4	1100	13.8 158.2	28,287	1650	
4	2300	16.6 158.3	32,699	2480	
5	1200	19.4 158.4	9,498	--	
6-11		Port of Honolulu			
11	1100	19.3 158.6	17,461	--	
11	2300	14.5 158.5	31,156	680	
12	1100	13.5 158.4	17,086	3590	
12	1800	11.9 158.4	10 mb	590	
12	2300	10.7 158.3	25,622	4900	
13	0500	9.2 158.2	35 mb	--	

Date	Time	Position	Termination Height Padiosonde (m or mb)	Winds (m)	Remarks
13 Mar.	1100 GMT	7.7N	16,548	930	
13	1900	6.4	17 mb	1200	
13	2300	6.5	35,940	2840	
14	0500	6.5	105 mb	1370	
14	1100	6.5	20,621	--	
14	1700	6.5	27 mb	--	
14	1900	6.5	128 mb	6370	
14	2100	6.5	63 mb	7100	
14	2300	6.5	27,314	1810	
15	0200	6.5	187 mb	1430	
15	0400	6.5	107 mb	--	
15	0600	6.5	38 mb	3100	
15	0800	6.5	220 mb	1690	
15	1000	6.5	28 mb	1280	
15	1200	6.5	23,533	1440	
15	1500	6.5	10 mb	3030	
15	1700	6.5	68 mb	210	
15	2000	6.5	122 mb	2900	
15	2300	6.5	36,031	2900	
16	0300	6.5	463 mb	960	
16	0700	6.5	7 mb	530	
16	0900	6.5	157 mb	--	
16	1200	6.5	18,137	2460	
16	1500	6.5	99 mb	--	
16	1800	6.5	400 mb	1510	
16	2200	6.5	102 mb	--	
16	2300	6.5	24,424	910	
17	0300	6.5	9 mb	1800	
17	0700	6.5	7 mb	1400	
17	0900	6.5	15 mb	1680	
17	1200	6.5	35,806	--	
17	1800	6.5	19 mb	6020	
17	2300	6.5	859	--	
18	0500	6.5	183 mb	710	
18	1200	6.5	16,321	800	
18	1500	6.5	93 mb	910	

Battery failure

Date	Time	Position	Termination Height Radioonde (m or mb)	Winds (m)	Remarks
18 Mar.	1900 GMT	6.5N	158.0W	6 mb	450
18	2100	6.5	158.0	5 mb	460
19	0000	6.5	158.0	30,455	800
19	0400	6.5	158.0	14 mb	2220
19	0600	6.5	158.0	165 mb	900
19	0900	6.5	158.0	450 mb	--
19	1100	6.5	158.0	35,441	1510
19	1800	6.5	158.0	4 mb	1610
20	0000	6.5	158.0	15,620	1560
20	0600	6.5	158.0	235 mb	800
20	1200	6.5	158.0	4,430	770
20	1600	6.5	158.0	25 mb	820
20	1900	6.5	158.0	47 mb	--
20	2100	6.5	158.0	35 mb	2300
21	0000	6.4	157.9	17,127	1020
21	0400	6.4	157.9	76 mb	1560
21	0600	6.4	157.9	66 mb	1130
21	0900	6.4	157.9	38 mb	1020
21	1200	6.4	157.9	33,379	1510
21	1500	6.4	157.9	167 mb	1000
21	1800	6.4	157.9	110 mb	2930
21	2100	6.4	157.9	424 mb	550
22	0000	6.4	157.9	33,465	720
22	0400	6.4	157.9	124 mb	2390
22	0600	6.4	157.9	96 mb	700
22	0900	6.4	157.9	140 mb	720
22	1200	6.4	157.9	7,531	--
22	1600	6.4	157.9	366 mb	--
22	1800	6.4	157.9	122 mb	3460
22	2100	6.5	158.0	64 mb	1190
22	2300	6.3	157.8	32,556	570
23	0300	6.3	157.8	99 mb	1680
23	0500	6.3	157.8	215 mb	610
23	1200	6.3	157.8	13,933	2210
23	1800	6.3	157.8	31 mb	3410

Antenna broke on release

Signal stopped

Date	Time	Position	Termination Height Radiosonde (m or mb)	Winds (m)	Remarks
23 Mar.	2300 GMT	6.3N	16,324	--	
24	0400	6.3	No observation	--	Instrument hit ship on release
24	0600	6.3	81 mb	--	
24	1200	6.3	5,771	--	Icing TRW
24	1800	6.3	121 mb	3220	
24	2300	6.3	35,960	5310	
25	0600	6.3	68 mb	1900	
25	1200	6.3	33,283	--	
25	2300	6.3	34,636	2060	
26	1100	5.4	16,172	1050	
26	2300	3.8	31,168	2300	
27	1100	5.2	34,587	1290	
27	2300	5.9	No observation	--	Abrupt signal stop
28	0000	At Palmyra	25,575	3410	
28	1200	.1	29,338	1230	
28	2300	6.1	10,836	--	
29	1200	9.0	6,062	--	
30	0000	11.9	27,585	750	
30	1200	--	No observation	--	Into the sea
30	2300	17.6	7,523	3680	Abrupt signal stop

Appendix A5

SUMMARY OF UPPER AIR OBSERVATIONS: WEATHER SHIP IV, 13 MARCH TO 28 APRIL 1967
(All times are 2300 GMT)

Date	Position	Termination Height (m)	Remarks
13 Mar.	11.4N 160.9W	11,646	Leaking balloon
14	8.6 161.7	21,788	
15	6.2 162.3	15,297	
16	5.9 162.3	19,134	
17	At Palmyra	No observation	
22	2.9 157.5	20,638	
23	1.9 157.5	19,355	
24	1.9 157.5	31,172	
25	1.5 158.0	19,135	
26	0.4S 160.0	26,617	
27	0.4 160.0	21,779	
28	0.9 159.3	19,178	
29	2.7 157.2	25,985	
30	3.5 155.2	19,707	
31	4.0 155.0	31,240	
1 Apr.	4.0 155.0	26,658	
2	3.6 155.9	19,509	Power failure at release
3			
4	6.0 156.7	31,168	Leaking balloon
5	7.8 160.4	5,044	
6	9.5 164.0	45,278	
7	11.7 167.5	26,607	
8-12	Near Samoa or in Port at Pago Pago		
13	11.1 171.1	17,919	Radioonde failure
14	8.4 173.3	4,582	Icing
15	4.5 174.8	29,473	
16	1.5 176.2	16,431	Radioonde failure
17	0.2N 176.5	31,237	
18	0.5 176.6	27,988	
19	0.5 178.3	30,013	
20	0.5 178.4	19,181	
21	1.5 178.7	4,614	Instrument damaged on release
22	1.1 176.5	26,662	Damaged on release
23	No observation	30,021	Instrument hit sea surface
24	5.6 172.7		Instrument hit sea surface
25	No observation - gale winds		
26	No observation - gale winds		
27	12.0 166.6	25,984	
28	14.8 163.7	21,928	

APPENDIX B

NCAR RESEARCH AVIATION FACILITY FLIGHTS

1. Summary of NCAR Research Aviation Facility Flights:
Line Islands Experiment 271
2. Summary of Research Instrumentation Operating During
each NCAR Research Aviation Facility Line Islands
Flight 275
3. Instrumentation on NCAR Research Aviation Facility
Queen Air 304D: Line Islands Experiment 279

Appendix B1

SUMMARY OF NCAR RESEARCH AVIATION FACILITY FLIGHTS: LINE ISLANDS EXPERIMENT

Flt. No.	Date	Local Start Time	Total Data Time (hr:min)	Track and Altitude (100s of ft)											
				Pt. A	Alt. A-B	Ft. B	Alt. B-C	Pt. C	Alt. C-D	Pt. D	Alt. D-E	Pt. E	Alt. E-F	Pt. F	
1	28 Feb.	1125	2:52	Pal	5	Fan	5	Xmas							
2	28	1610	2:51	Xmas	5	0-59S 157-32W	5	0-59S 157-01W		5	Xmas				
3	1 Mar.	1332	2:33	Xmas	7	Fan	7	Pal							
4	3	0753	5:50	Pal	5	9-00N 161-15W	5	9-00N 158-00W		100	6-30N 158-00W	100	Pal		
5	5	1014	5:26	Pal	100	6-30N 157-45W	5	Fan		5	Pal				
6	7	0957	4:43	Pal	5	5-55N 159-20W	5	Fan		5	Pal				
7	8	1052	1:58	Pal Local	55:75										
8	9	0755	3:40	Pal Local	240:180										
9	9	1331	3:19	Pal Local	30-60- 120-.5										
10	10	1208	4:48	Pal	100	5-55N 159-15W	5	3-15N 159-20W		100	3-15N 162-05W	100	Pal		
11	11	1050	5:15	Pal	5	6-40N 162-05W	120	6-40N 159-25W		5	Fan	100	3-55N 162-05W	5	Pal
12	12	1030	4:39	Pal	100	6-40N 162-05W	100	6-25N 159-25W		100	Fan	100	3-55N 162-05W	5	Pal
13	13	0742	4:37	Pal	5	6-30N 157-50W	5	Xmas							
14	13	1458	3:50	Xmas	100	2-00S 157-30W	5	Xmas							
15	14	1059	1:26	Xmas Atoll Study	10										
16	14	1400	3:44	Xmas	10	2-00N 159-25W	10	5-55N 159-25W		100	Pal				

Flt. No.	Date	Local Start Time	Total Data Time (hr:min)	Track and Altitude (100s of ft)												
				Pt. A	Alt. A-B	Pt. B	Alt. B-C	Pt. C	Alt. C-D	Pt. D	Alt. D-E	Pt. E	Alt. E-F	Pt. F		
17	15 Mar	1032	5:08	Pal	100	6-00N 159-30W	5	8-30N 159-30W	100	8-30N 162-05W	5	Pal				
18	16	1114	4:50	Pal	100	6-30N 161-30W	100	6-30N 158-20W	5	7-30N 158-20W	100	7-30N 162-05W	5	Pal		
19	18	1610	1:46	Pal Local	10	Diurnal change study										
20	19	0513	1:52	Pal Local	10	Diurnal change study										
21	19	1308	2:08	Pal Local	10-100	Diurnal change study										
22	20	1105	5:05	Pal	100	5-55N 159-25W	5	3-00N 159-25W	100	3-00N 162-05W	5	Pal				
23	21	1327	4:40	Pal	100	6-30N 157-45W	100	Fan	5	Pal						
24	22	0808	2:43	Pal	100	Fan	100	Xmas								
25	22	1401	2:34	Xmas	5	Fan	5	Pal								
26	23	1042	5:37	Pal	100	Fan	100	Xmas	5	Fan	5	Pal				
27	24	1235	4:36	Pal	100	6-30N 157-45W	100	Fan	100	Pal						
28	25	1333	4:35	Pal	100	6-30N 157-45W	100	Fan	100	Pal						
29	26	1009	3:48	Pal	100	Fan	100	Xmas								
30	27	0913	5:24*	Xmas	5	1-20S 156-00W	5	Complex Track	5	1-20S 158-00W	5	Xmas				
31	28	0845	4:35	Xmas	5	Fan	5	8-00N 159-25W	5	Pal						
32	29	1320	3:42	Pal	100	6-12N 160-00W	100	8-00N 160-00W	100	8-00N 162-05W	100	Pal				

*6:41 from another source.

Flt. No.	Date	Local Start Time	Total Data Time (hr:min)	Track and Altitude (100s of ft)									
				Pt. A	Alt. A-B	Pt. B	Alt. B-C	Pt. C	Alt. C-D	Pt. D	Alt. D-E	Pt. E	Pt. F
33	30 Mar	1007	4:48	Pal	100	6-30N 157-45W	100	Fan	100	Pal			
34	31	1035	5:31	Pal	100	0-00N 162-00W	5	Pal					
35	1 Apr	0651	5:33	Pal	5	Fan	5	6-30N 157-45W	100	Pal			
36	1	1342	5:26	Pal	5	6-30N 157-45W	100	Fan	100	Pal			
37	2	1358	2:17	Local	55								
38	3	1028	5:53	Pal	5	Fan	5	Xmas	100	Fan	100	Pal	
39	4	0712	3:56	Local	180-240- 120								
40	4	1356	2:47	Local	60-30-.5								
41	6	1239	4:55	Pal	100	6-30N 157-45W	100	Fan	100	Pal			
42	7	1257	2:25	Local	Various levels	Various levels - cloud study							
43	7	1620	1:16	Local	Various levels	Various levels - cloud study							
44	8	1028	2:10	Local	100-50	"Doughnut" cloud study							
45	8	1627	1:12	Local	208-5	"Doughnut" cloud study							
46	9	0920	5:12	Pal	100	6-30N 157-45W	100	Fan	100	Pal			
47	10	1411	0:35	Local	15	Calibration of ARIS temperature sensor							
48	11	1113	5:13	Pal	100	7-30N 159-25W	100	Fan	10	2-00N 159-25W	10	Xmas	

Flt. No.	Date	Local Start Time	Total Data Time (hr:min)	Track and Altitude (100s of ft)									
				Pt. A	Alt. A-B	Pt. B	Alt. B-C	Pt. C	Alt. C-D	Pt. D	Alt. D-E	Pt. E	Pt. F
49	12 Apr.	1009	5:20	Xmas	10	2-00N 157-00W	10	2-00S 157-00W	10	2-00S 157-30W	10	Xra	
50	13	0926	4:34	Xmas	10	Fan	10	8-00N 159-25W	10	Pal			
51	14	0751	4:05	Pal Local	180-240-30								
52	14	1337	2:41	Pal Local	120-60-.5								
53	15	1045	5:05	Pal	10	Fan	10	8-00N 159-25W	10	Pal			
54	16	0847	3:07	Pal	10	4-00N 162-05W	10	4-00N 160-30W	10	5-55N 160-30W	10	Pa	
55	17	1310	4:07	Pal	100	10-00N 162-05W	8	Pal					
56	18	1255	3:43	Pal	100	10-00N 162-05W	8	Pal					
57	19	0740	4:41	Pal	8	3-00N 162-05W	8	5-00N 165-00W	8	Pal			
58	19	1359	4:26	Pal	8	3-00N 162-05W	8	5-00N 165-00W	8	Pal			
59	20	0719	3:34	Pal	8	Fan	100	Pal					
60	21	0807	3:25	Pal	100	10-00N 162-05W	8	Pal					

SUMMARY OF RESEARCH INSTRUMENTATION OPERATING DURING EACH NCAR RESEARCH AVIATION FACILITY LINE ISLANDS FLIGHT

(X indicates instrument was operational during the flight)

[illegible]

Flt. No.	Date	Digital Clock	Reverse Flow Probe	Axial Flow Probe	Wet Bulb Probe	Bendix Hygro.	Pace PLA	Pace KP-15	J-W Hot Wire	Spinning Bowl	N-1 Compass	Doppler Navig.	Barnes IT-3	Camera	Air Samp. Equip.	Aris
18	16 Mar.	X	X	X	X		X	X	X		X	X	X	X		X
19	18	X	X	X	X		X	X	X		X	X	X	X		X
20	19	X	X	X	X		X	X	X		X	X	X			X
21	19	X	X	X	X		X	X	X		X	X	X	X		X
22	20	X	X	X	X		X	X	X		X	X	X	X		X
23	21	X	X	X	X		X	X	X		X	X	X	X		X
24	22	X	X	X	X		X	X	X		X	X	X	X		X
25	22	X	X	X	X		X	X	X		X	X	X	X		X
26	23	X	X	X	X		X	X	X		X	X	X	X		X
27	24	X	X	X	X		X	X	X		X	X	X	X		X
28	25	X	X	X	X		X	X	X		X	X	X	X		X
29	26	X	X	X	X		X	X	X		X	X	X	X		X
30	27	X	X	X	X		X	X	X		X	X	X	X		X
31	28	X	X	X	X		X	X	X		X	X	X	X		X
32	29	X	X	X	X		X	X	X		X	X	X	X		X
33	30	X	X	X	X		X	X	X		X	X	X	X		X
34	31	X	X	X	X		X	X	X		X	X	X	X		X
35	1 Apr.	X	X	X	X		X	X	X		X	X	X	X		X
36	1	X	X	X	X		X	X	X		X	X	X	X		X
37	2	X	X	X	X		X	X	X		X	X	X	X		X

Flt. No.	Date	Digital Clock	Reverse Flow Probe	Axial Flow Probe	Wet Bulb Probe	Bendix Hygro.	Pace PLA	Pace KP-15	J-W Hot Wire	Spinning Bowl	N-1 Compass	Doppler Navig.	Barnes IT-3	Camere	Air Samp. Equip.	Aris
38	3 Apr.	X	X	X	X	X	X	X	X				X	X		X
39	4	X	X	X		X	X	X	X						X	X
40	4	X	X	X		X	X	X	X						X	X
41	6	X	X	X	X	X	X	X	X					X		X
42	7	X	X	X	X	X	X	X	X				X	X		X
43	7	X	X	X	X	X	X	X	X				X	X		X
44	8	X	X	X	X	X	X	X	X				X	X		X
45	8	X	X	X	X	X	X	X	X					X		X
46	9	X	X	X	X	X	X	X	X					X		X
47	10	X	X	X	X	X	X	X	X				X	X		X
48	11	X	X	X	X	X	X	X	X				X	X		X
49	12	X	X	X	X	X	X	X	X				X	X		X
50	13	X	X	X	X	X	X	X	X				X	X		X
51	14	X	X	X		X	X	X	X					X	X	X
52	14	X	X	X		X	X	X	X					X	X	X
53	15	X	X	X	X	X	X	X	X				X	X		X
54	16	X	X	X	X	X	X	X	X				X	X		X
55	17	X	X	X	X	X	X	X	X		X	X	X	X		X
56	18	X	X	X	X	X	X	X	X		X	X	X	X		X
57	19	X	X	X	X	X	X	X	X		X	X	X	X		X

Flt. No.	Date	Digital Clock	Reverse Flow Probe	Axial Flow Probe	Wet Bulb Probe	Bendix Hygro.	Pace PIA	Pace KP-15	J-W Hot Wire	Spinning Bowl	N-1 Compass	Doppler Navig.	Barnes IT-3	Camera	Air Samp. Equip.	Aris
58	19 Apr.	X	X	X	X	X	X	X	X		X	X	X	X		X
59	20	X	X	X	X	X	X	X	X		X	X	X	X		X
60	21	X	X	X	X	X	X	X	X		X	X		X		X

Appendix B3

INSTRUMENTATION ON NCAR RESEARCH AVIATION FACILITY QUEEN AIR 304D:
LINE ISLANDS EXPERIMENT

<u>Equipment</u>	<u>Parameter</u>
1. Digital clock	Time reference
2. Reverse flow temperature probe	Air temperature
3. NRL axial flow probe	Air temperature
4. Wet bulb probe	Wet bulb temperature
5. Bendix hygrometer	Dew point temperature
6. Pace PIA	Absolute pressure
7. Pace KP-15	Indicated airspeed
8. Johnson-Williams hot wire	Cloud liquid water content
9. Prototype spinning bowl	Cloud liquid water content
10. N-1 compass	Magnetic heading Flight level wind
11. APN-153V doppler navigator	Drift, ground speed Flight level wind
12. Giannini III-B 16-mm camera	Cloud photography
13. Barnes 1T-3 infrared thermometer (University of Wisconsin)	Sea surface temperature
14. Air sampling equipment	Aerosols
15. Aircraft Research Instrumentation System	Hybrid data acquisition system

APPENDIX C

SUMMARY OF WOODS HOLE OCEANOGRAPHIC INSTITUTION FLIGHTS

Information for use with Appendix C

All times for the 12 Woods Hole Oceanographic Institution (WHOI) flights are in GMT.

MSw has been used to indicate manual switching of both range and thermistors. The period of switching is irregular and may be as long as 2 or 3 min.

All winds are in knots.

Appendix C

WFOI Flight No. 1

11-12 April 1967

Honolulu - Fanning Island - Christmas Island

Takeoff 1717 GMT

Landing 0157 GMT

1. Low Level North-South Cross Section of Convergence Zone
2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1901	1635N	15804W	800	017/16
2000	1359N	15828W	800	010/10
2130	1002N	15846W		010/05
2230	0730N	15857W		
2330	0435N	15913W		010/08
0013	Comparison square flown with Queen Air NE of Fanning Island			
0102	0300N	15925W	11,200	
0140	0200N	15822W	11,200	

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1745	0157	MSw 0050 - 0120 dry only 0146 - 0153
Dew point hygrometer	0052	0157	none
Shortwave radiometer	1726	0157	none
Bolex cloud pictures	1717	0157	none
K-100 cloud pictures	1717	0157	none
Radar pictures	1737	0154	none
Infrared radiometers	IT-3, R8, and NIMBUS		
Dust counter	operated		
Dropsondes			

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4764	800	1827	1829
	4765	800	1923	1925
	4766	800	2042	2044
	4767	980	2203	2206
	4768	960	2304	2306
	4769	970	2345	0006
	4770	960	0016	0018
	4771	960	0020	0022
	4772	920	0024	0026
	4773	920	0029	0031

WHOI Flight No. 2 13-14 April 1967

Christmas Island - 2S 157W - 2S 159W - 2N 159W - Christmas Island - 2S 157W -
Christmas Island

Takeoff 1739 GMT

Landing 0150 GMT

1. Low Level Rectangle across Equator and High Level Section

2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1910	0200S	15730W	800	090/20
1957	0200S	15920W	800	080/18
2131	0200N	15925W	800	110/12
2237	Christmas Island climb to 14,000			
2355	0200S	15730W	14,000	

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1746	0146	2119 - 2124 MSw 2155 - 2205 dry only 0114 - 0122
Dew point hygrometer	2247	0123	none
Shortwave radiometer	1751	0148	none
Bolex cloud pictures	1739	0150	none
K-100 cloud pictures	1739	0150	none
Radar pictures	1752	0146	2312 - 2348
Infrared radiometer	IT-3, R8, and NIMBUS		
Dust counter	operated		

<u>Dropsondes</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Exceptions</u>
	2312	0002N	15712W	14,110	none
	2355	0200S	15721W	14,105	none
	0036	0000	15731W	14,100	none
	0105	0119N	15737W	14,095	none

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4775	800	1906	1911
	4776	800	1921	1923
	4777	800	1943	1949
	4778	800	2003	2011
	4779	800	2038	2044
	4780	800	2105	2109
	4781	800	2139	2145
	4786	14,000	2323	2330
	4787	14,000	2339	2345

WHOI Flight No. 3

15-16 April 1967

Christmas Island - 1N 159W - Fanning Island - Honolulu

Takeoff 1130 GMT

Landing 0105 GMT

1. High Level South to North Section of Convergence Zone

2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude(ft)</u>	<u>Winds</u>
1822	0120N	15920W	10,000	
1917	Fanning Island		11,000	110/15
2030	0722N	15920W	12,000	090/18
2200	1200N	15900W	12,000	120/22
2300	1505N	15850W	12,000	270/20
0000	1818N	15822W	12,000	240/20

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1736	0100	MSW 1754 - 1929
Dew point hygrometer	1819	0100	2116 - 2126 2150 - 2155 2200 - 2210
Shortwave radiometer	1738	0111	1856 - 2043
Bolex cloud pictures	1730	0105	none
K-100 cloud pictures	1730	0100	1919 - 2036
Radar pictures	1752	0035	none
Infrared radiometer	IT-3, R8, and NIMBUS		
Dust counter	operated		

<u>Dropsondes</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Exceptions</u>
	1836	0200N	15925W	10,000	none
	1916	0350N	15925W	10,400	none
	2002	0600N	15918W	12,110	below 982 mb
	2044	0757N	15920W	12,110	none
	2120	1000N	15920W	12,050	none
	2202	1200N	15920W	12,060	below 869 mb
	2219	1300N	15901W	12,050	none

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4788	10,000	1813	1819
	4789	12,100	1954	2005
	4790	12,000	2046	2053
	4791	12,100	2157	2201
	4792	12,000	2334	2341

WHOI Flight No. 4

17-18 April 1967

Honolulu - Palmyra Island - Canton Island

Takeoff 1722 GMT

Landing 0435 GMT

1. Low Level Section North to South through Convergence Zone

2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1834	1809N	15836W	800	010/08
1920	1607N	15947W	800	040/08
2020	1343N	16113W	800	065/09
2145	1000N	16202W	800	060/06
2314	Palmyra Island - flight with Queen Air			090/07
0048	0408N	16312W	800	140/10
0140	0050N	16415W	800	140/09
0300	0050S	16725W	800	140/09
0341	0142S	16920W	800	150/10

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1736	0426	
Dew point hygrometer	1728	0426	2240 - 2250 0130 - 0137
Shortwave radiometer	1736	0426	none
Bolex cloud pictures	1722	0424	none
K-100 cloud pictures	1748	0430	none
Radar pictures	1831	0317	none
Infrared radiometers	IT-3, R8, and NIMBUS		
Dropsondes	none		

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4794	800	1849	1853
	4795	800	1935	1937
	4796	800	2030	2033
	4797	800	2108	2113
	4798	800	2137	2145
	4799	800	2234	2237
	4800	800	2344	2348
	4801	800	0032	0036
	4802	800	0204	0208
	4803	800	0317	0320
	4804	800	0332	0334

WHOI Flight No. 5

19-20 April 1967

Canton Island - 5N 165W - Palmyra Island - 3N 162W - Canton Island

Takeoff 1811 GMT

Landing 0415 GMT

1. Sections through Convergence Zone in Region of Line Islands

2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1900	0105S	17026W	800	130/18
2010	0112N	16853W	800	090/20
2050	0220N	16752W	800	090/18
2140	0346N	16626W	800	075/16
2200	0417N	15549W	Start climb to 12,000	
2227	0504N	16504W	12,000	
2340	Palmyra Island		12,000	090/10
0037	0301N	16148W	12,000	090/07
0120	0200N	16347W	12,000	120/04
0250	0017S	16755W	12,000	150/06
0320	0107S	16914W	12,000	090/18

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1834	0411	1901 - 1908
Dew point hygrometer	1831	0411	2046 - 2055 0214 - 0226
Shortwave radiometer	1858	0411	none
Bolex cloud pictures	1814	0415	none
K-100 cloud pictures	1814	0415	none
Radar pictures	1820	0404	none
Infrared radiometers	TI-3, RB, and NIMBUS		

<u>Dropsondes</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Exceptions</u>
	2300	0511N	16345W	12,050	none
	2345	0530N	16202W	12,025	none
	0037	0301N	16158W	12,045	none
	0209	0048N	16554W	12,200	none
	0315	0059S	16904W	12,210	none

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4805	800	1842	1847
	4806	800	1949	1953
	4807	800	2105	2113
	4808	800	2130	2135
	4809	800	2148	2154
	4810	12,000	2215	2301
	4811	12,000	0001	0006
	4812	12,000	0007	0016
	4813	12,000	0136	0140
	4814	12,000	0335	0342

WHOI Flight No. 6

21-22 April 1967

Canton Island - Palmyra Island - Honolulu

Takeoff 1802 GMT

Landing 0420 GMT

1. High Level Section through Convergence Zone
2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1910	0038S	16923W	2,000	132/15
2020	0120N	16723W	2,000	090/15
2045	0200N	16642W	Start climb to 12,000	
2140	0328N	16504W	12,000	068/18
2300	Palmyra Island		12,000	160/12
0020	0943N	16107W	12,000	106/12
0130	1310N	16007W	12,000	134/14
0230	1600N	15900W	12,000	170/14

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1806	0415	none
Dew point hygrometer	1850	0415	0245 - 0252
Shortwave radiometer	1809	0411	none
Bolex cloud pictures	1805	0140	2150 - 2340
K-100 cloud pictures	1803	0410	none
Radar pictures	1806	0211	none
Infrared Radiometers	IT-3, R8, and NIMBUS		

<u>Dropsondes</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Exceptions</u>
	2205	0402N	16429W	12,055	none
	2350	0820N	16136W	12,010	none
<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>	
	4818	2,020	2007	2019	
	4819	2,020	2028	2033	
	4820	12,100	2134	2138	
	4821	12,100	2244	2251	
	4822	12,080	0026	0031	
	4823	12,080	0128	0133	
	4825	10,000	0313	0318	

WH01 Flight No. 7

1-2 May 1967

Honolulu - 15N 159W - 14N 162W - Palmyra Island - Canton Island

Takeoff 1705 GMT

Landing 0320 GMT

1. Low Level Downwind Run in Trades and North-South Section through Convergence Zone
2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1800	1850N	15821W	800	080/20
1923	1500N	15903W	800	075/22
2021	1357N	16159W	800	076/24
2030	1045N	16159W	800	068/22
2309	Palmyra Island		800	070/21
0000	0400N	16359W	800	054/18
0140	0024N	16757W	800	060/22
0240	0145S	17016W	800	055/18

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1710	0320	none
Dew point hygrometer	1816	0319	none
Shortwave radiometer	1720	0125	Failure at 0125
Bolex cloud pictures	1717	0316	2112 - 2218
K-100 cloud pictures	1720	0316	none
Radar pictures	1736	0314	none
Infrared radiometers	1T-3, and RC		
Dropsondes	none		

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4827	800	1730	1733
	4828	800	1818	1824
	4829	800	1908	1913
	4830	800	1930	1939
	4831	800	1958	2008
	4832	800	2039	2045
	4833	800	2052	2103
	4834	800	2151	2156
	4835	800	2256	2302
	4836	800	2330	2340
	4837	800	0054	0102
	4838	800	0211	0226

WHOI Flight No. 8

3-4 May 1967

Canton Island - 7N 166W at 800 ft - 5N 170W - Return at 12,000 ft

Takeoff 1800 GMT

Landing 0315 GMT

1. Low and High Level Sections across Dry Zone and along Axis of Convergence Zone

2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1920	0038N	17107W	800	078/21
2102	0500N	17000W	800	080/18
2104			100	100/18
2220	0625N	16658W	800	117/21
2227			100	115/20
2309	0614N	16656W	12,000	075/28
0017	0457N	17029W	12,000	090/20
0120	0216N	17117W	12,000	100/20
0220	0018N	17151W	12,000	115/20
0239	Start descent to Canton Island			

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1801	0313	MSW and frozen wick 0137 - 0300
Dew point hygrometer	1809	0312	none
Shortwave radiometer	1843	0312	none
Bolex cloud pictures	1802	0315	1937 - 2031
K-100 cloud pictures	1802	0315	none
Radar pictures	1810	0304	2012 - 2200
Infrared radiometers	IT-3 and R8		

<u>Dropsondes</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Exceptions</u>
	2308	0161N	16647W	12,160	none
	2345	0540N	16831W	12,200	none
	0030	0423N	17018W	12,200	none
	0115	0220N	17043W	12,240	none
	0200	0024N	17144W	12,450	none
	0235	0125S	17148W	12,600	none

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4839	1,000	1821	1828
	4840	960	1911	1917
	4841	1,000	2015	2019
	4842	1,000	2033	2045
	4843	200	2100	2109
	4844	200 - 940	2138	2242
	4845	12,200	2332	2338
	4846	12,200	0015	0019
	4847	12,200	0025	0044
	4848	12,200	0045	0052

WH01 Flight No. 9

5-6 May 1967

Takeoff 1758 GMT

Landing 0240 GMT

1. North-South Section through ITC: Canton Island - 10N 172W at 2,000 ft - Return at 12,000 ft

2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1840	0048S	17151W	2,000	104/24
2000	0300N	17214W	2,000	095/22
2130	0743N	17208W	2,000	130/27
2158	0900N	17207W	100	105/15
2220	1000N	17202W	Climb and turn south	
2255	0827N	17158W	2,000	085/10
2350	0703N	17153W	2,000	080/12
0120	0140N	17156W	2,000	078/21
0200	0049S	17148W	2,000	090/19
0205	Start descent to Canton Island			

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1800	0234	none
Dew point hygrometer	1808	0234	none
Shortwave radiometer	1800	0234	none
Bolex cloud pictures	1804	0234	none
K-100 cloud pictures	1758	0234	none
Radar pictures	1804	0224	none
Infrared radiometer	1T-3 and R8		

<u>Dropsondes</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Exceptions</u>
	2255	0829N	17158W	12,160	none
	2340	0602N	17149W	12,135	none
	0025	0543N	17148W	12,110	none
	0110	0148N	17152W	12,115	none
	0155	0034S	17148W	12,115	none

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4849	2,200	1814	1825
	4850	2,140	1855	1908
	4851	2,140	1922	1931
	1852	2,120	2022	2039
	4853	2,140	2055	2109
	4855	180	2159	2203
	4856	2,200	2220	2222
	4857	4,200	2225	2227
	4858	6,200	2230	2232
	4859	8,280	2236	2238
	4860	10,200	2243	2245
	4861	12,140	2254	2314
	4862	12,100	0008	0020

WHOI Flight No. 10

7-8 May 1967

Takeoff 1756 GMT

Landing 0305 GMT

1. Canton Island - 6S 172W - 6N 172W - Return at 12,000 ft

2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1850	0512S	17142W	800	087/15
1907	0558S	17143W	100	
1924	Start square for doppler radar check 2,000			
1940	0621S	17147W	Climb to 12,000	
2057	0246S	17153W	12,000	115/17
2140	0034S	17145W	12,000	115/17
2345	0555N	17152W	12,000	075/16
0110	0212N	17217W	800	110/18
0220	0104S	17208W	12,000	070/18
0245	0215S	17157W	12,000	065/17

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1758	0304	dry only 2015 - 2316
Dew point hygrometer	1803	0304	none
Shortwave radiometer	1758	0304	none
Bolex cloud pictures	1800	0145	few min lost at 2300
K-100 cloud pictures	1757	0304	none
Radar pictures	1801	0256	none
Infrared radiometer	IT-3 and R8		

<u>Dropsondes</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Exceptions</u>
	2013	0457S	17148W	12,115	none
	2140	0034S	17145W	12,110	none
	2225	0149N	17149W	12,115	641 - 781 mb
	2310	0359N	17145W	12,120	none
	2345	0056N	17149W	12,120	none

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4864	920	1824	1839
	4865	960	1902	
		200		
		1,000		
		2,000		1938
	4866	4,100	1944	1946
	4868	12,100	2149	2155
	4869	10,000	2353	0003
	4870	6,750	0015	0023
	4871	4,200	0032	0042
	4872	2,200	0049	0052
	4873	950	0057	0107
	4874	940	0151	0201

WFOI Flight No. 11

9-10 May 1967

Takeoff 1802 GMT

Landing 0149 GMT

1. Cumulus Study: Canton Island - 6N 172W - Return at 12,000 ft

2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1848	0105N	1747W	6,000	065/15
	Square flown to check doppler radar			
2110	0445N	17202W	6,000	083/14
2141	0616N	17159W	6,000	095/11
2155	0537N	17201W	Start study of cumulus	
2240	0537N	17201W	End study of cumulus; start climb to 12,000	
0000	0148N	17152W	12,000	110/16
0100	0058S	17153W	12,000	120/20
0116	Start descent to Canton Island			

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1803	0147	dry only 2253 - 0016
Dew point hygrometer	1814	0147	none
Shortwave radiometer	1805	0147	none
Bolex cloud pictures	1834	0135	none
K-100 cloud pictures (camera pointing forward)	2130	2250	time of operation uncertain
Radar pictures	1827	0149	none
Infrared radiometers	IT-3 and R8		

<u>Dropsondes</u>	<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Exceptions</u>
	2300	0439N	17200W	12,150	none
	2345	0236N	17150W	12,160	none
	0030	0028N	17150W	12,160	none
	0115	0130S	17151W	12,180	none

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4875	2,140	1824	1828
	4876	4,180	1837	1841
	4877	6,180	1915	1924
	4878	6,180	2005	2015
	4870	6,180	2026	2035
	4880	6,180	2038	2040
	4881	12,160	2334	2341

WHOI Flight No. 12

10-11 May 1967

Takeoff 1756 GMT

Landing 0426 GMT

1. Canton Island - 14N 166W - 16N 160W - Honolulu

2. Flight Path and Navigational Winds

<u>Time</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Altitude (ft)</u>	<u>Winds</u>
1850	0048S	17103W	6,000	050/24
1940	0117N	17029W	6,000	088/28
2030	0319N	16947W	6,000	068/27
2150	0640N	16839W	6,000	080/21
2220	0747N	16752W	6,000	095/20
2345	1210N	16612W	6,000	103/19
0047	1430N	16400W	6,000	150/20
0100	1441N	16335W	1,000	070/16
0237	1655N	15956W	1,000	110/17
0330	1853N	15828W	1,000	104/15
0400	2008N	15757W	1,000	104/15

3. Observations Taken

	<u>On</u>	<u>Off</u>	<u>Exceptions</u>
Psychrograph	1800	0421	2214 - 2219
Dew point hygrometer	1804	0424	none
Shortwave radiometer	1800	1426	none
Bolex cloud pictures	1804	0422	none
K-190 cloud pictures	1758	0204	none
Radar pictures	1802	0358	2054 - 2253
Infrared radiometers	IT-3 and R8		
Dropsondes	none		

<u>Turbulence runs</u>	<u>Number</u>	<u>Altitude (ft)</u>	<u>Start</u>	<u>Stop</u>
	4882	6,200	1822	1825
	4883	6,200	1838	1850
	4884	6,150	2007	2033
	4885	1,180	0107	0117
	4886	1,180	0149	0154
	4887	1,180	0200	0210
	4889	1,200	0305	0310
	4890	1,200	0315	0325

APPENDIX D

LISTS OF SATELLITE PICTURES TAKEN DURING
LINE ISLANDS EXPERIMENT

1. 1967 ATS-1 Photo Inventory 297
2. ESSA I Pictures of Line Islands Area,
15 February to 30 April 1967 325
3. ESSA III Pictures of Line Islands Area,
15 February to 30 April 1967 327
4. APT Satellite Pictures (ESSA IV and NIMBUS II)
Received on Palmyra 330

Information for use with Appendix D1: Quality of ATS-1 prints

<u>Condition</u>	<u>Code</u>
Good, no serious imperfections except at poles where a flattening is acceptable	1
Lateral shift and slight peripheral distortion	2
Distortion of the sphere	3
Severe cropping or interference with parts of picture missing but equatorial area present	4
Cropping or interference which causes sections of equatorial area to be missing	5

Appendix D1

1967 ATS-1 PHOTO INVENTORY

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
14 Feb.	160403	046-7-020403	1	1
14	162654	046-7-022654	2	1
14	164951	046-7-024951	3	1
14	171244	046-7-031244	4	1
14	173540	046-7-033540	5	1
15	063642	046-7-163642	6	1
15	065937	046-7-165937	7	1
15	072232	046-7-172232	8	1
15	074528	046-7-174528	9	1
15	080821	046-7-180821	10	1
15	115947	046-7-215947	12	1
15	125305	046-7-225305	13	1
15	131610	046-7-231610	14	1
15	133859	046-7-233859	15	1
15	155606	047-7-015606	1	1
15	164156	047-7-024156	3	1
15	172748	047-7-032748	5	1
16	063743	047-7-163743	6	1
16	070040	047-7-170040	7	1
16	073420	047-7-173420	8	1
16	075713	047-7-175713	9	1
16	110142	047-7-210142	11	1
16	112440	047-7-212440	12	1
16	114736	047-7-214736	13	1
16	121032	047-7-221032	14	1
16	125923	047-7-225923	15	1
16	132221	047-7-232221	16	1
16	160440	048-7-020440	1	1
17	064603	048-7-164603	2	1
17	070900	048-7-170900	3	1
17	073154	048-7-173154	4	1
17	104029	048-7-204029	5	1
17	110326	048-7-210326	6	1
17	112622	048-7-212622	7	1
17	114916	048-7-214916	8	1
17	121218	048-7-221218	9	1
17	123509	048-7-223509	10	1
17	125804	048-7-225804	11	1
18	030943	049-7-130943	1	1
18	033729	049-7-133729	2	1
18	040026	049-7-140026	3	1
18	042323	049-7-142323	4	1
18	044616	049-7-144616	5	1
18	050912	049-7-150912	6	1
18	053209	049-7-153209	7	1
18	055503	049-7-155503	8	1
18	061758	049-7-161758	9	1
18	064051	049-7-164051	10	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
18 Feb.	070349	049-7-170349	11	1
18	072641	049-7-172641	12	1
18	074938	049-7-174938	13	1
18	081231	049-7-181231	14	1
18	083527	049-7-183527	15	1
18	090440	049-7-190440	16	1
18	092734	049-7-192734	17	1
18	095030	049-7-195030	18	1
18	101324	049-7-201324	19	1
18	103620	049-7-203620	20	1
18	105917	049-7-205917	21	1
18	112355	049-7-212355	22	1
18	115654	049-7-215654	23	1
18	121900	049-7-221900	24	1
18	124244	049-7-224244	25	2
18	130538	049-7-230538	26	2
18	132833	049-7-232833	27	2
18	135127	049-7-235127	28	2
18	141427	050-7-001427	1	1
18	143718	050-7-003718	2	1
18	150012	050-7-010012	3	1
18	152310	050-7-012310	4	1
18	154602	050-7-014602	5	1
18	160858	050-7-020858	6	1
18	164005	050-7-024005	7	1
18	170254	050-7-030254	8	1
18	172551	050-7-032551	9	1
18	174845	050-7-034845	10	1
18	181143	050-7-041143	11	1
18	183437	050-7-043437	12	1
18	185732	050-7-045732	13	1
18	192026	050-7-052026	14	1
18	194321	050-7-054321	15	1
18	200615	050-7-060615	16	1
18	202910	050-7-062910	17	1
18	205208	050-7-065208	18	1
18	211506	050-7-071506	19	1
19	030751	050-7-130751	20	1
19	033046	050-7-133046	21	1
19	035338	050-7-135338	22	1
19	041632	050-7-141632	23	1
19	043928	050-7-143928	24	1
19	050222	050-7-150222	25	1
19	052518	050-7-152518	26	1
19	054812	050-7-154812	27	1
19	061109	050-7-161109	28	1
19	063402	050-7-163402	29	1
19	065950	050-7-165950	30	1
19	072243	050-7-172243	31	1
19	074540	050-7-174540	32	1
19	080833	050-7-180833	33	1
19	083129	050-7-183129	34	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
19 Feb.	085423	050-7-185423	35	1
19	092807	050-7-192807	36	1
19	095100	050-7-195100	37	1
19	101356	050-7-201356	38	1
19	103649	050-7-203649	39	1
19	103946	050-7-203946	40	1
19	112242	050-7-212242	41	1
19	114530	050-7-214530	42	1
19	120831	050-7-220831	43	1
19	125415	050-7-225415	44	1
19	131710	050-7-231710	45	1
19	135815	050-7-235815	46	1
19	142112	051-7-002112	1	1
19	144405	051-7-004405	2	1
19	150700	051-7-010700	3	1
19	152954	051-7-012954	4	1
19	155253	051-7-015253	5	1
19	161547	051-7-021547	6	1
19	163839	051-7-023839	7	1
19	170137	051-7-030137	8	1
19	172430	051-7-032430	9	1
19	174726	051-7-034726	10	1
19	181020	051-7-041020	11	1
19	183326	051-7-043326	12	1
19	185610	051-7-045610	13	1
19	191905	051-7-051905	14	1
19	194202	051-7-054202	15	1
19	200459	051-7-060455	16	1
19	202747	051-7-062747	17	1
19	205045	051-7-065045	18	1
20	082238	051-7-182238	19	1
20	085155	051-7-185155	20	1
20	091454	051-7-191454	21	1
20	093749	051-7-193749	22	1
20	100045	051-7-200045	23	1
20	102339	051-7-202339	24	1
20	104535	051-7-204535	25	1
20	110931	051-7-210931	26	1
20	113227	051-7-213227	27	1
20	115500	051-7-215500	28	1
20	121818	051-7-221818	29	1
20	124110	051-7-224110	30	1
20	130412	051-7-230412	31	1
21	073558	052-7-173558	1	1
21	075854	052-7-175854	2	1
21	105340	052-7-205340	3	1
21	111650	052-7-211650	4	1
21	113847	052-7-213847	5	1
21	122550	052-7-222550	6	1
21	124843	052-7-224843	7	1
21	131127	052-7-231127	8	1

Local Date	Local Time	NASA Identification	Sequence	Quality
22 Feb.	051936	053-7-151936	1	1
22	054411	053-7-154411	2	1
22	081448	053-7-181448	3	1
22	105902	053-7-205902	4	1
22	112159	053-7-212159	5	1
22	114453	053-7-214453	6	1
22	120751	053-7-220751	7	1
22	123401	053-7-223401	8	1
22	125356	053-7-225356	9	1
23	073240	054-7-173240	1	1
23	075532	054-7-175532	2	1
23	081830	054-7-181830	3	1
23	112210	054-7-212210	4	1
23	114500	054-7-214500	5	1
23	120756	054-7-220756	6	1
23	123052	054-7-223052	7	1
23	125344	054-7-225344	8	1
24	054136	055-7-154136	1	1
24	060430	055-7-160430	2	1
24	062726	055-7-162726	3	1
24	065020	055-7-165020	4	1
24	071534	055-7-171534	5	1
24	073826	055-7-173826	6	1
24	080122	055-7-180122	7	1
24	084712	055-7-184712	9	1
24	104636	055-7-204636	10	1
24	110929	055-7-210929	11	1
24	113226	055-7-213226	12	1
24	115526	055-7-215526	13	1
24	121826	055-7-221816	14	1
No photos for 25 Feb. Greenwich date				
26	071558	057-7-171558	1	1
26	073851	057-7-173851	2	1
26	080150	057-7-180150	3	1
26	082442	057-7-182442	4	1
26	111813	057-7-211813	5	4
26	114101	057-7-214101	6	1
26	120405	057-7-220405	7	1
26	125029	057-7-225029	8	1
26	131319	057-7-231319	9	1
27	054002	058-7-154002	1	1
27	060300	058-7-160300	2	1
27	062553	058-7-162553	3	1
27	064847	058-7-164847	4	1
27	071916	058-7-171916	5	2
27	074330	058-7-174330	6	1
27	080626	058-7-180626	7	2
27	083604	058-7-183604	8	2
27	085859	058-7-185859	9	1
27	092152	058-7-192152	10	1
27	104105	058-7-204105	11	1
27	111625	058-7-211625	12	1
27	113920	058-7-213920	13	1
27	120216	058-7-220216	14	1

Local Date	Local Time	NASA Identification	Sequence	Quality
27 Feb.	122509	058-7-222509	15	1
27	124810	058-7-224810	16	1
27	131102	058-7-231102	17	1
27	230700	059-7-090700	1	1
28	072025	059-7-172025	2	1
28	074321	059-7-174321	3	1
28	080613	059-7-180613	4	1
28	082908	059-7-182908	5	1
28	091453	059-7-191453	7	1
28	104817	059-7-204817	8	1
28	111009	059-7-211009	9	1
28	113310	059-7-213310	10	1
28	124323	059-7-224323	11	1
28	130619	059-7-230619	12	1
1 Mar.	104100	060-7-204100	2	1
1	110327	060-7-210327	3	1
1	112619	060-7-212619	4	1
1	115310	060-7-215310	5	1
1	121603	060-7-221603	6	1
1	155220	061-7-015220	1	3
1	161558	061-7-021558	2	3
2	112435	061-7-212435	4	3
3	103625	062-7-213625	1	3
3	105918	062-7-205918	2	3
3	112214	062-7-212214	3	3
3	114508	062-7-214508	4	3
3	120804	062-7-220804	5	3
3	123058	062-7-223058	6	3
3	125352	062-7-225352	7	3
3	131647	062-7-231647	8	3
3	155336	063-7-015336	1	3
3	161612	063-7-021612	2	3
3	194145	063-7-054145	3	3
3	200430	063-7-060430	4	3
4	101922	063-7-201922	6	3
4	104232	063-7-204232	7	3
4	110432	063-7-210432	8	3
4	112656	063-7-212656	9	3
4	115115	063-7-215115	10	3
4	121409	063-7-221409	11	3
4	154541	064-7-014541	1	3
4	160836	064-7-020836	2	3
4	163132	064-7-023132	3	3
4	194649	064-7-054649	4	3
4	200845	064-7-060845	5	3
4	203142	064-7-063142	6	3
5	102333	064-7-202333	7	3
5	104627	064-7-204627	8	3
5	110920	064-7-210920	9	3
5	113216	064-7-213216	10	3

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
5 Mar.	115509	064-7-215509	11	3
5	121806	064-7-221806	12	3
5	124059	064-7-224059	13	3
5	130355	064-7-230355	14	3
	No photos for 6 Mar. Greenwich date			
6	224818	066-7-084818	1	3
6	225956	066-7-085956	2	3
7	140631	067-7-000631	1	3
7	142926	067-7-002926	2	3
7	145227	067-7-005227	3	3
7	151517	067-7-011517	4	3
	No photos for 9 Mar. Greenwich date			
9	143625	069-7-003625	2	3
10	222901	070-7-082901	1	3
11	102049	070-7-202049	2	3
11	104343	070-7-204343	3	3
11	110636	070-7-210636	4	3
11	112930	070-7-212930	5	3
11	130610	070-7-230610	6	3
11	132926	070-7-232926	7	3
11	135245	070-7-235245	8	3
11	141413	071-7-001413	1	3
11	154021	071-7-014021	2	3
11	221659	071-7-081659	3	3
12	101610	071-7-201610	4	3
12	105113	071-7-205113	5	3
12	111406	071-7-211406	6	3
12	113700	071-7-213700	7	3
12	130930	071-7-230930	9	3
12	133632	071-7-233632	10	3
13	101752	072-7-201752	1	3
13	104046	072-7-204046	2	3
13	112632	072-7-212632	4	3
13	125239	072-7-225239	5	3
13	132934	072-7-232934	6	3
13	135218	072-7-235218	7	3
13	143807	073-7-003807	2	3
13	164050	073-7-024050	3	3
13	170347	073-7-030347	4	3
13	172640	073-7-032640	5	3
14	081310	073-7-181310	7	3
14	083603	073-7-183603	8	3
14	090635	073-7-190635	9	3
14	092930	073-7-192930	10	3
14	095225	073-7-195225	11	3
14	101518	073-7-201518	12	3
14	103815	073-7-203815	13	3
14	110107	073-7-210107	14	3
14	112359	073-7-212359	15	3

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
14 Mar.	114650	073-7-214650	16	3
14	120944	073-7-220944	17	3
14	123238	073-7-223238	18	3
14	125530	073-7-225530	19	3
14	131826	073-7-231826	20	3
14	134117	073-7-234117	21	3
14	140414	074-7-000414	1	3
14	142707	074-7-302707	2	3
14	145001	074-7-005001	3	3
15	081130	074-7-181130	4	3
15	083433	074-7-183433	5	3
15	085713	074-7-185713	6	3
15	092006	074-7-192006	7	3
15	100554	074-7-200594	9	3
15	102846	074-7-202846	10	3
15	105143	074-7-205143	11	3
15	111440	074-7-211440	12	3
15	113729	074-7-213729	13	3
15	120023	074-7-220023	14	3
15	122317	074-7-222317	15	3
15	124610	074-7-224610	16	3
15	133159	074-7-233159	18	3
15	135452	074-7-235452	19	3
15	141745	075-7-001745	1	3
15	144039	075-7-004039	2	3
15	150332	075-7-010332	3	3
15	152626	075-7-012626	4	3
15	154919	075-7-014919	5	3
15	161215	075-7-021215	6	3
15	163511	075-7-023511	7	3
15	172056	075-7-032056	9	3
16	083425	075-7-183425	17	3
16	085718	075-7-185718	18	3
16	092006	075-7-192006	19	3
16	094305	075-7-194305	20	3
16	100559	075-7-200559	21	3
16	102852	075-7-202852	22	3
16	105145	075-7-205145	23	3
16	111438	075-7-211438	24	3
16	113729	075-7-213729	25	3
16	120018	075-7-220018	26	3
16	122314	075-7-222314	27	3
16	124606	075-7-224606	28	3
16	130900	075-7-230900	29	3
16	133153	075-7-233153	30	3
16	135444	075-7-235444	31	3
16	144030	076-7-004030	2	3
16	150324	076-7-010324	3	5

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
16 Mar.	152618	076-7-012618	4	3
16	154911	076-7-014911	5	3
16	163456	076-7-023456	7	3
16	165750	076-7-025750	8	3
17	101438	076-7-201438	9	3
17	110820	076-7-210820	11	3
17	142709	077-7-002709	1	3
17	145006	077-7-005006	2	3
17	165524	077-7-025524	3	3
17	171820	077-7-031820	4	3
18	131843	077-7-231843	5	4
18	133112	077-7-233112	6	3
18	135351	077-7-235351	7	3
18	141648	078-7-001648	1	3
18	143938	078-7-003938	2	3
19	111820	078-7-211820	3	3
19	114114	078-7-214114	4	3
19	125836	078-7-225836	5	3
19	132132	078-7-232132	6	5
19	134423	078-7-234423	7	3
19	140716	079-7-000716	1	3
19	143007	079-7-003007	2	3
19	145300	079-7-005300	3	3
21	090255	080-7-190255	1	3
21	092540	080-7-192540	2	3
21	094720	080-7-194720	3	2
21	103700	080-7-203700	4	2
21	105941	080-7-205941	5	2
21	112200	080-7-212200	6	4
21	113045	080-7-213045	7	4
21	115057	080-7-215057	8	2
21	121305	080-7-221305	9	2
21	123643	080-7-223643	10	2
21	125937	080-7-225937	11	2
21	132232	080-7-232232	12	2
21	134522	080-7-234522	13	5
21	140114	081-7-000114	1	2
21	142504	081-7-002504	2	2
21	144703	081-7-004703	3	2
21	163955	081-7-023955	4	2
21	165836	081-7-025836	5	2
22	080517	081-7-180517	6	2
22	082810	081-7-182810	7	2
22	901357	081-7-191357	9	2
22	903650	081-7-193650	10	2
22	095947	081-7-195947	11	2
22	102241	081-7-202241	12	2
22	105840	081-7-205840	13	2
22	112136	081-7-212136	14	2
22	114426	081-7-214426	15	2

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
22 Mar.	123014	081-7-223014	17	2
22	125309	081-7-225309	18	2
22	131603	081-7-231603	19	2
22	153858	081-7-233858	20	2
22	140155	082-7-000155	1	2
22	142445	082-7-002445	2	2
22	144737	082-7-004737	3	2
22	151033	082-7-011033	4	2
22	153328	082-7-013328	5	2
22	155625	082-7-015625	6	2
22	161916	082-7-021916	7	2
22	164209	082-7-024209	8	2
22	170506	082-7-030506	9	2
23	105756	082-7-205756	11	5
23	112045	082-7-212045	12	2
23	114338	082-7-214338	13	2
23	130216	082-7-230216	14	2
23	132508	082-7-232508	15	2
23	134801	082-7-234801	16	2
23	164935	083-7-024935	1	2
24	073141	083-7-173141	3	2
24	080800	083-7-180800	4	2
24	101145	083-7-201145	5	2
24	103437	083-7-203437	6	1
24	105729	083-7-205729	7	2
24	112023	083-7-212023	8	1
24	114316	083-7-214316	9	4
24	124746	083-7-224746	10	1
24	131037	083-7-231037	11	2
24	132331	083-7-233331	12	1
24	135523	083-7-235523	13	1
24	141918	084-7-001918	1	1
24	144211	084-7-004211	2	1
24	150502	084-7-010502	3	1
24	164339	084-7-024339	4	2
24	170633	084-7-030633	5	2
24	172924	084-7-032924	6	2
25	100802	084-7-200802	7	1
25	103056	084-7-203056	8	1
25	105350	084-7-205350	9	1
25	111642	084-7-211642	10	1
25	113936	084-7-213936	11	1
25	124608	084-7-224608	12	1
25	130915	084-7-230915	13	2
25	133155	084-7-233155	14	2
25	135448	084-7-235448	15	2
25	141742	085-7-001742	1	2
25	144035	085-7-004035	2	2
25	164318	085-7-024318	3	2
25	170612	085-7-030612	4	1
25	172901	085-7-032901	5	1
26	072744	085-7-172744	6	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
26 Mar.	075038	085-7-175038	7	1
26	081330	085-7-181330	8	1
26	083624	085-7-183624	9	1
26	100104	085-7-200104	10	1
26	102356	085-7-202356	11	2
26	104649	085-7-204649	12	2
26	110945	085-7-210945	13	2
26	113236	085-7-213236	14	1
26	125738	085-7-225738	15	2
26	132026	085-7-232026	16	2
26	134320	085-7-234320	17	2
26	140612	086-7-000612	1	2
26	142906	086-7-002906	2	2
26	145159	086-7-005159	3	1
26	164217	086-7-024217	4	1
26	170509	086-7-030509	5	1
27	045247	086-7-145247	6	2
27	051542	086-7-151542	7	2
27	053834	086-7-153834	8	2
27	072024	086-7-172024	9	5
27	074320	086-7-174320	10	2
27	080611	086-7-180611	11	2
27	095241	086-7-195241	12	5
27	103828	086-7-203828	13	1
27	110121	086-7-210121	14	1
27	112414	086-7-212414	15	1
27	114710	086-7-214710	16	5
27	125204	086-7-225204*	17	1
27	125202	086-7-225202*	18	4
27	131455	086-7-231455	19	1
27	133749	086-7-233749	20	1
27	140043	087-7-000043	1	1
27	142340	087-7-002340	2	2
27	144633	087-7-004633	3	2
27	150925	087-7-010925	4	2
27	153218	087-7-013218	5	2
28	072308	087-7-172308	6	2
28	074602	087-7-174602	7	2
28	080856	087-7-180856	8	2
28	100536	087-7-200536	9	2
28	102826	087-7-202826	10	2
28	105119	087-7-205119	11D	2
28	11412	087-7-211412	12	2
28	113711	087-7-213711	13	2
28	132636	087-7-232636	14	2
28	134927	087-7-234927	15	2
29	073053	088-7-173053	1	1
29	075346	088-7-175346	2	1
29	081641	088-7-181641	3D	1
29	100838	088-7-200838	4	1

* Obviously one or both is in error.

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
29 Mar.	103132	088-7-203132	5	1
29	140850	089-7-000850	1	1
29	164950	089-7-024950	2	1
29	171248	089-7-031248	3	2
29	173342	089-7-033342	4	2
30	074920	089-7-174920	5	1
30	133829	089-7-233829	6	2
30	140122	090-7-000122	1	2
31	102606	090-7-202606	2	1
31	114720	090-7-214720	3D	2
31	133503	090-7-233503	4	1
31	135757	090-7-235757	5	1
31	142050	091-7-002050	1	1
31	164936	091-7-024936	2	1
31	171230	091-7-031230	3	1
31	173523	091-7-033523	4	1
1 Apr.	044337	091-7-144337	5	2
1	052700	091-7-152700	6D	1
1	071111	091-7-171111	7	1
1	073405	091-7-173405	8	1
1	075700	091-7-175700	9	1
1	081952	091-7-181952	10	1
1	133005	091-7-233005	11	1
1	135259	091-7-235259	12	1
1	141532	092-7-001532	1	1
1	164800	092-7-024800	2	1
1	171053	092-7-031053	3	1
1	173344	092-7-033344	4	1
2	045724	092-7-145724	5	1
2	052020	092-7-152020	6	1
2	073250	092-7-173250	7	1
2	075550	092-7-175550	8	1
2	081838	092-7-181838	9	1
2	100950	092-7-200950	10	1
2	103245	092-7-203245	11	1
2	105600	092-7-205600	12	1
2	111831	092-7-211831	13	1
2	114125	092-7-214125	14	4
2	132601	092-7-232601	15	1
2	134854	092-7-234854	16	1
2	141151	093-7-001151	1	1
3	045506	093-7-145506	2	1
3	051807	093-7-151807	3	1
3	070554	093-7-170554	4	1
3	072907	093-7-172907	5	1
3	075145	093-7-175145	6	1
3	081440	093-7-181440	7	1
4	073334	094-7-173334	1	1
4	075629	094-7-175629	2	1
4	081922	094-7-181922	3	1
4	095630	094-7-195630	4	1
4	101920	094-7-201920	5	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
4 Apr.	104210	094-7-204210	6	1
4	110512	094-7-210512	7	1
4	112748	094-7-212748	8	5
4	114300	094-7-214300	9	1
4	125923	094-7-225923	10	1
4	132216	094-7-232216	11	1
4	134513	094-7-234513	12	2
4	140806	095-7-000806	1	1
4	143059	095-7-003059	2	1
4	145353	095-7-005353	3	4
4	163923	095-7-023923	4	1
4	170216	095-7-030216	5	1
4	172510	095-7-032510	6	1
5	081802	095-7-181802	7	1
5	084056	095-7-184056	8	1
5	090349	095-7-190349	9	1
5	092641	095-7-192641	10	1
5	094937	095-7-194937	11	1
6	121639	096-7-221639	1	1
6	123922	096-7-223922	2	1
6	130224	096-7-230224	3	1
6	132518	096-7-232518	4	1
6	134812	096-7-234812	5	1
6	141105	097-7-001105	1	1
6	162828	097-7-022828	2	1
6	165122	097-7-025122	3	1
6	171414	097-7-031414	4	1
6	173708	097-7-033708	5	4
7	100216	097-7-200216	6	1
7	102339	097-7-202339	7	1
7	104642	097-7-204642	8	1
7	110923	097-7-210923	9	1
7	133952	097-7-233952	10	1
7	140246	098-7-000246	1	1
7	142542	098-7-002542	2	1
7	144336	098-7-004336	3	1
7	151126	098-7-011126	4	1
7	153419	098-7-013419	5	1
8	025926	098-7-125926	6	5
8	034507	098-7-134507	7	1
8	040800	098-7-140800	8	1
8	062740	098-7-162740	11	2
8	065033	098-7-165033	12	1
8	071326	098-7-171326	13	1
8	073621	098-7-173621	14	1
8	075914	098-7-175914	15	1
8	082207	098-7-182207	16	4
8	120032	098-7-220032	17	1
8	122325	098-7-222325	18	1
8	124619	098-7-224619	19	1

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8 Apr.	130912	098-7-230912	20	1
8	133205	098-7-233205	21	1
8	160758	099-7-020758	1	2
8	163051	099-7-023051	2	1
8	165348	099-7-025348	3	1
8	171641	099-7-031641	4	1
9	084846	099-7-184846	5	1
9	091139	099-7-191139	6	1
9	093432	099-7-193432	7	1
9	095725	099-7-195725	8	1
9	102019	099-7-202019	9	1
9	125033	099-7-225033	10	1
9	131330	099-7-231330	11	1
9	133619	099-7-233619	12	1
9	135910	099-7-235910	13	1
9	142206	100-7-002206	1	2
9	163530	100-7-023530	2D	1
9	165830	100-7-025830	3	1
9	172110	100-7-032110	4	1
10	104522	100-7-204522	5	2
10	110955	100-7-210955	6	2
10	113248	100-7-213248	7	2
10	115541	100-7-215541	8	2
10	121835	100-7-221835	9	2
10	171753	101-7-031753	1	1
10	174045	101-7-034045	2	1
10	180339	101-7-040339	3	1
11	081220	101-7-181220	4	4
11	083513	101-7-183513	5	1
11	085808	101-7-185808	6	1
11	131127	101-7-231127	7	2
11	133418	101-7-233418	8	1
11	163325	102-7-023325	1	1
11	165615	102-7-025615	2	1
11	171911	102-7-031911	3	1
12	113130	102-7-213130	4	2
12	115425	102-7-215425	5	2
12	161535	103-7-021535	1	1
12	163830	103-7-023830	2	1
12	170125	103-7-030125	3	1
12	172418	103-7-032418	4	1
13	041317	103-7-141317	5	1
13	045410	103-7-145410	6	1
13	051703	103-7-151703	7	1
13	054300	103-7-154300	8	1
13	060548	103-7-160548	9	1
13	062840	103-7-162840	10	1
13	065134	103-7-165134	11	1
13	071429	103-7-171429	12	1
13	073720	103-7-173720	13	1
13	080014	103-7-180014	14	1
13	082308	103-7-182308	15	1
13	084602	103-7-184602	16	1

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13 Apr.	090855	103-7-190855	17	5
13	092210	103-7-192210	18	1
13	094503	103-7-194503	19	1
13	100757	103-7-200757	20	1
13	103051	103-7-203051	21D	1
13	105343	103-7-205343	22	4
13	111640	103-7-211640	23	1
13	113930	103-7-213930	24	1
13	120224	103-7-220224	25	1
13	133519	103-7-222519	26	1
13	124816	103-7-224816	27	1
13	131110	103-7-231110	28	1
13	133404	103-7-233403	29	1
13	135758	103-7-235758	30	1
13	141952	104-7-001952	1	4
13	150350	104-7-010350	2	1
13	152642	104-7-012642	3	1
13	161130	104-7-021130	5	1
13	163525	104-7-023525	6	1
13	165818	104-7-025818	7	1
13	172112	104-7-032112	8	1
13	174407	104-7-034407	9	1
13	180659	104-7-040659	10	1
13	182952	104-7-042952	11	1
13	185246	104-7-045246	12	1
13	194607	104-7-054607	15	1
13	200857	104-7-060857	16	1
13	203150	104-7-063150	17	1
14	031139	104-7-131139	18	1
14	033433	104-7-133433	19	1
14	035723	104-7-135723	20D	1
14	042020	104-7-142020	21	1
14	044314	104-7-144314	22	1
14	050606	104-7-150606	23	1
14	052900	104-7-152900	25	1
14	061447	104-7-161447	26	1
14	063743	104-7-163743	27	1
14	070036	104-7-170036	28	1
14	072333	104-7-172333	29	1
14	074630	104-7-174630	30	1
14	080920	104-7-180920	31	1
14	083216	104-7-183216	32	1
14	085509	104-7-185509	33	1
14	091806	104-7-191806	34	1
14	094059	104-7-194059	35	1
14	100352	104-7-200352	36	1
14	102649	104-7-202649	37	4
14	104949	104-7-204949	38	4
14	111236	104-7-211236	39	2
14	113530	104-7-213530	40	2

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14 Apr.	115826	104-7-215826	41	2
14	122121	104-7-222121	42	2
14	124413	104-7-224413	43	2
14	130706	104-7-230706	44	2
14	133004	104-7-233004	45	2
14	135256	104-7-235256	46	2
14	141550	105-7-001550	1	5
14	143224	105-7-003224	2	1
14	145518	105-7-005518	3	1
14	151813	105-7-011813	4	1
14	154106	105-7-014106	5	1
14	160300	105-7-020300	6	4
14	162230	105-7-022230	7	1
14	164829	105-7-024829	8	1
14	171122	105-7-031122	9	1
14	173418	105-7-033418	10	1
14	175713	105-7-035713	11	1
14	182006	105-7-042006	12	1
14	184259	105-7-044259	13	1
14	190556	105-7-050556	14	1
14	192850	105-7-052850	15	1
14	195010	105-7-055010	16	1
14	201436	105-7-061436	17	1
14	203732	105-7-063732	18	1
15	030911	105-7-130911	19	1
15	044714	105-7-144714	21	1
15	051027	105-7-151027	22	1
15	053344	105-7-153344	23	1
15	062935	105-7-162933	24	1
15	065250	105-7-165250	25	1
15	071604	105-7-171604	26	1
15	075733	105-7-175733	27	1
15	082047	105-7-182047	28	1
15	084401	105-7-184401	29	1
15	093804	105-7-193804	30	1
15	100117	105-7-200117	31	1
15	102431	105-7-202431	32	1
15	111848	105-7-211848	33	1
15	114202	105-7-214202	34	1
15	120517	105-7-220517	35	1
15	140850	106-7-004850	1	1
15	151205	106-7-011205	2	1
15	153520	106-7-013520	3	1
15	163143	106-7-023143	4	1
15	165457	106-7-025457	5	1
15	171810	106-7-031810	6	1
15	185701	106-7-045701	7	1
15	192016	106-7-052016	8	1
15	194329	106-7-054329	9	1
15	200643	106-7-060643	10	1
15	203002	106-7-063002	11	1

Local Date	Local Time	NASA Identification	Sequence	Quality
16 Apr.	031415	106-7-131415	12	1
16	033729	106-7-133729	13	5
16	040043	106-7-140043	14	1
16	042357	106-7-142357	15	1
16	044712	106-7-144712	16	1
16	051026	106-7-151026	17	1
16	053333	106-7-153333	18	1
16	055656	106-7-155656	19	1
16	062012	106-7-162012	20	1
16	064326	106-7-164326	21	1
16	070640	106-7-170640	22	1
16	072954	106-7-172954	23	1
16	075311	106-7-175311	24	1
16	081625	106-7-181625	25	1
16	083939	106-7-183939	26	1
16	090255	106-7-190255	27	1
16	092609	106-7-192609	28	1
16	094921	106-7-194921	29	1
16	101238	106-7-201238	30	1
16	103553	106-7-203553	31	1
16	105907	106-7-205907	32	1
16	112221	106-7-212221	33	1
16	114536	106-7-214536	34	1
16	120855	106-7-220855	35	1
16	123207	106-7-223207	36	1
16	125521	106-7-225521	37	1
16	131836	106-7-231836	38	1
16	134153	106-7-234153	39	1
16	140506	107-7-000506	1	1
16	142821	107-7-002821	2	1
16	145139	107-7-005139	3	1
16	151451	107-7-011451	4	1
16	153805	107-7-013805	5	1
16	160121	107-7-020121	6	1
16	162434	107-7-022434	7	1
16	164752	107-7-024752	8	1
16	171105	107-7-031105	9	1
16	173419	107-7-033419	10	1
16	175734	107-7-035734	11	1
16	182048	107-7-042048	12	1
16	184903	107-7-044903	13	1
16	190720	107-7-050720	14	1
16	193034	107-7-053034	15	1
16	195348	107-7-055348	16	1
16	201702	107-7-061702	17	1
16	204017	107-7-064017	18	1
17	030957	107-7-130957	19	1
17	033211	107-7-133211	20	5
17	035526	107-7-135526	21	5
17	043412	107-7-143412	22	1
17	045725	107-7-145725	23	1
17	052043	107-7-152043	24	1
17	054356	107-7-154356	25	1
17	061849	107-7-161849	26	1

Local Date	Local Time	NASA Identification	Sequence	Quality
17 Apr.	064202	107-7-164202	27	2
17	070519	107-7-170519	28	1
17	072833	107-7-172833	29	1
17	075144	107-7-175144	30	1
17	081502	107-7-181502	31	1
17	090140	107-7-190140	33	1
17	092447	107-7-192447	34	1
17	094802	107-7-194802	35	1
17	101115	107-7-201115	36	1
17	103430	107-7-203430	37	1
17	105805	107-7-205805	38	1
17	112101	107-7-212101	39	1
17	114415	107-7-214415	40	1
17	120735	107-7-220735	41	1
17	123046	107-7-223046	42	1
17	124500	107-7-224500	43	1
17	131715	107-7-231715	44	1
17	134029	107-7-234029	45	1
17	140345	108-7-000345	1	1
17	142701	108-7-002701	2	1
17	145015	108-7-005015	3	1
17	151331	108-7-011331	4	1
17	153646	108-7-013646	5	5
17	155959	108-7-015959	6	1
17	163314	108-7-023314	7	1
17	164730	108-7-024630	8	1
17	171450	108-7-031450	10	1
17	173729	108-7-033729	11	1
17	180043	108-7-040043	12D	1
17	182401	108-7-042401	13	1
17	184714	108-7-044714	14	1
17	191029	108-7-051029	15	1
17	193342	108-7-053342	16	1
17	195700	108-7-055700	17	1
17	202014	108-7-062014	18	1
17	204330	108-7-064330	19	1
18	032656	108-7-132656	20	5
18	034804	108-7-134804	21	1
18	041117	108-7-141117	22	1
18	043432	108-7-143432	23	1
18	045745	108-7-145745	24	1
18	052059	108-7-152059	25	1
18	054217	108-7-154217	26	1
18	060732	108-7-160732	27	1
18	063045	108-7-163045	28	1
18	063400	108-7-163400	29	1
18	071716	108-7-171716	30	1
18	074030	108-7-174030	31	1
18	081129	108-7-181128	32	1
18	084728	108-7-184728	34	1
18	091042	108-7-191042	35	1

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18 Apr.	093359	108-7-193359	36	1
18	095710	108-7-195710	37	1
18	102023	108-7-202023	38	1
18	104343	108-7-204343	39	1
18	110700	108-7-210700	40	1
18	113013	108-7-213013	41	1
18	115632	108-7-215632	42	1
18	121948	108-7-221948	43	1
18	124302	108-7-224302	44	1
18	130616	108-7-230616	45	1
18	132840	108-7-232840	46	1
18	135247	108-7-235247	47	1
18	141615	109-7-001615	1	1
18	143918	109-7-003918	2	1
18	150234	109-7-010234	3	1
18	152549	109-7-012549	4	1
18	154903	109-7-014903	5	1
18	161218	109-7-021218	6	1
18	163535	109-7-023535	7	1
18	165849	109-7-025849	8	1
18	172206	109-7-032206	9	1
18	174520	109-7-034520	10D	5
18	180840	109-7-040840	11	1
18	183151	109-7-043151	12	1
18	185508	109-7-045508	13	1
18	191826	109-7-051826	14	1
18	194140	109-7-054140	15	1
18	200458	109-7-060458	16	4
18	202811	109-7-062811	17	1
19	030915	109-7-130915	18	1
19	033229	109-7-133229	19	1
19	035545	109-7-135545	20	1
19	044930	109-7-144930	22D	1
19	051245	109-7-151245	23	1
19	053600	109-7-153600	24	1
19	055915	109-7-155915	25	1
19	062229	109-7-162229	26	1
19	064543	109-7-164543	27	1
19	070900	109-7-170900	28	1
19	073217	109-7-173217	29	1
19	075521	109-7-175521	30	1
19	081849	109-7-181849	31	1
19	084203	109-7-184203	32	1
19	090520	109-7-190520	33	1
19	092833	109-7-192833	34	1
19	095151	109-7-195151	35	1
19	101505	109-7-201505	36	1
19	103823	109-7-203823	37	1
19	110150	109-7-210150	38	1
19	112455	109-7-212455	39	1
19	114810	109-7-214810	40	1
19	121126	109-7-221126	41	1

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19 Apr.	123439	109-7-223439	42	1
19	125855	109-7-225855	43	1
19	132112	109-7-232112	44	1
19	134424	109-7-234424	45	1
19	140742	110-7-000742	1	5
19	143056	110-7-003056	2	1
19	145413	110-7-005413	3	1
19	151727	110-7-011727	4	1
19	154002	110-7-014002	5	1
19	160359	110-7-020359	6	1
19	171344	110-7-031344	7	1
19	173658	110-7-033658	8	1
19	180012	110-7-040012	9	1
19	182330	110-7-042330	10	1
19	184644	110-7-044644	11	1
19	190900	110-7-050900	12	1
19	193317	110-7-053317	13	1
19	195632	110-7-055632	14	1
19	201946	110-7-061946	15	1
19	204301	110-7-064301	16	1
20	031200	110-7-131200	17	1
20	033513	110-7-133513	18	1
20	035830	110-7-135830	19	1
20	042149	110-7-142149	20	1
20	044502	110-7-144502	21	1
20	050816	110-7-150816	22	1
20	053132	110-7-153132	23	1
20	055447	110-7-155447	24	1
20	061804	110-7-161804	25	1
20	064125	110-7-164125	26	1
20	070432	110-7-170432	27	1
20	072750	110-7-172750	28	1
20	075103	110-7-175103	29	1
20	081421	110-7-181421	30	1
20	083738	110-7-183738	31	1
20	090950	110-7-190050	32	1
20	092410	110-7-192410	33	1
20	094728	110-7-194728	34	1
20	101042	110-7-201042	35	1
20	103458	110-7-203458	36	1
20	105713	110-7-205713	37	1
20	112029	110-7-212029	38p	1
20	114346	110-7-214346	39	1
20	120700	110-7-220700	40	1
20	123017	110-7-223017	41	1
20	125332	110-7-225332	42	1
20	131649	110-7-231649	43	1
20	134006	110-7-234006	44	1
20	140322	111-7-000322	1	1
20	142633	111-7-002633	2	1
20	144951	111-7-004951	3	1
20	151305	111-7-011305	4	1
20	153620	111-7-013620	5	1
20	155937	111-7-015937	6	1

Local Date	Local Time	ICSA Identification	Sequence	Quality
20 Apr	162250	111-7-022250	7	4
20	164610	111-7-024610	8	1
20	170923	111-7-030923	9	1
20	173236	111-7-033236	10	1
20	175554	111-7-035554	11	1
20	181908	111-7-041908	12	1
20	184225	111-7-044225	13	1
20	190539	111-7-050539	14	1
20	192853	111-7-052853	15	1
20	195210	111-7-055210	16	1
20	201526	111-7-061526	17	1
20	203841	111-7-063841	18	1
21	030804	111-7-130804	19	1
21	033127	111-7-133127	20	1
21	035436	111-7-135436	21	1
21	041753	111-7-141753	22	1
21	044107	111-7-144107	23	1
21	050424	111-7-150424	24	1
21	052739	111-7-152739	25	1
21	055055	111-7-155055	26	1
21	061412	111-7-161412	27	1
21	063717	111-7-163717	28	1
21	070044	111-7-170044	29	1
21	072400	111-7-172400	30	1
21	074715	111-7-174715	31	1
21	081029	111-7-181029	32	1
21	083346	111-7-183346	33	1
21	085701	111-7-185701	34	1
21	092017	111-7-192017	35	1
21	094331	111-7-194331	36	1
21	100646	111-7-200646	37	1
21	103003	111-7-203003	38	1
21	105327	111-7-205327	39	4
21	112338	111-7-212338	40	1
21	114647	111-7-214647	41	1
21	121007	111-7-221007	42	1
21	123324	111-7-223324	43	1
21	125640	111-7-225640	44	2
21	132001	111-7-232001	45	1
21	134309	111-7-234309	46	1
21	140623	112-7-000623	1	1
21	142941	112-7-002941	2	4
21	145256	112-7-005256	3	1
21	151612	112-7-011612	4	1
21	153927	112-7-013927	5	1
21	162558	112-7-022558	7	1
21	164911	112-7-024911	8	1
21	171225	112-7-031225	9	1
21	173542	112-7-033542	10	1
21	175857	112-7-035857	11	1
21	184528	112-7-044528	13	1
21	190843	112-7-050843	14	1
21	193157	112-7-053157	15	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
21 Apr.	195514	112-7-055514	16	1
21	201828	112-7-061828	17D	1
21	204143	112-7-064143	18	1
22	032636	112-7-132636	19	1
22	035000	112-7-135000	20	1
22	042036	112-7-142036	21	5
22	044353	112-7-144353	22	1
22	050711	112-7-150711	23	1
22	053024	112-7-153024	24	1
22	055339	112-7-155339	25	1
22	061655	112-7-161655	26	1
22	064013	112-7-164013	27	1
22	070329	112-7-170329	28	1
22	072643	112-7-172643	29	1
22	075001	112-7-175001	30	1
22	081314	112-7-181314	31	1
22	083633	112-7-183633	32	1
22	085949	112-7-185949	33	1
22	092303	112-7-192303	34	1
22	094620	112-7-194620	35	1
22	100940	112-7-200940	36	1
22	103251	112-7-203251	37	1
22	105609	112-7-205609	38	1
22	111926	112-7-211926	39	1
22	114243	112-7-214243	40	1
22	120558	112-7-220558	41	1
22	122914	112-7-222914	42	1
22	125232	112-7-225232	43	1
22	131546	112-7-231546	44	2
22	133902	112-7-233902	45	1
22	141818	113-7-001818	1	1
22	144136	113-7-004136	2	1
22	150810	113-7-010810	3	1
22	153121	113-7-013121	4	1
22	155440	113-7-015440	5	1
22	161757	113-7-021757	6	1
22	164113	113-7-024113	7	1
22	170430	113-7-030430	8	1
22	173701	113-7-033701	9	1
22	180010	113-7-040010	10	1
22	182330	113-7-042330	11	1
22	184645	113-7-044645	12	1
22	191000	113-7-051000	13	1
22	193317	113-7-053317	14	1
22	195133	113-7-055633	15	1
22	201949	113-7-061949	16	1
22	204305	113-7-064305	17	1
23	025544	113-7-125544	18	1
23	031805	113-7-131805	19	1
23	034122	113-7-134122	20	1
23	040437	113-7-140437	21	1
23	043932	113-7-143932	22	1
23	050246	113-7-150246	23	5

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
23 Apr.	052500	113-7-152500	24	1
23	054920	113-7-154920	25	5
23	061239	113-7-161239	26	4
23	063554	113-7-163554	27	5
23	083033	113-7-183033	28	1
23	085347	113-7-185347	29	1
23	091704	113-7-191704	30	1
23	094022	113-7-194022	31	1
23	100335	113-7-200335	32	1
23	102652	113-7-202652	33	1
23	105009	113-7-205009	34	1
23	111327	113-7-211327	35	1
23	113640	113-7-213640	36	-2
23	115959	113-7-215959	37	1
23	122317	113-7-222317	38	2
23	124629	113-7-224629	39	1
23	130946	113-7-230946	40	1
23	133303	113-7-233303	41	1
23	135617	113-7-235617	42	1
23	141935	114-7-001935	10	5
23	144249	114-7-004249	2	1
23	150605	114-7-010605	3	1
23	152920	114-7-012920	4	4
23	155237	114-7-015237	5	1
23	161551	114-7-021551	6	1
23	163905	114-7-023905	7	5
23	170249	114-7-030249	9	1
23	172610	114-7-032610	10	1
23	174918	114-7-034918	11	1
23	181221	114-7-041221	12	1
23	183550	114-7-043550	13	1
23	185901	114-7-045901	14	1
23	192220	114-7-052220	15	1
23	194534	114-7-054534	16	1
23	200841	114-7-060841	17	1
23	203205	114-7-063205	18	1
24	030351	114-7-130351	19	1
24	032707	114-7-132707	20	1
24	035023	114-7-135023	21	1
24	041339	114-7-141339	22	1
24	043654	114-7-143654	23	1
24	050012	114-7-150012	24	1
24	052324	114-7-152324	25	1
24	054641	114-7-154641	26	1
24	060949	114-7-160949	27	1
24	063302	114-7-163302	28	1
24	065630	114-7-165630	29	1
24	071948	114-7-171948	30	1
24	103900	114-7-203900	31D	5
24	110217	114-7-210217	32	1
24	114828	114-7-214828	33	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
24 Apr.	125049	114-7-225049	34	1
24	131500	114-7-231500	35	1
24	133834	114-7-233834	36	1
25	140309	116-7-000309	1	1
25	142628	116-7-002628	2	1
25	162730	116-7-022730	3	1
25	165049	116-7-025044	4	1
25	171405	116-7-031405	5	1
25	173723	116-7-033723	6	1
25	190308	116-7-050308	7	1
25	192623	116-7-052623	8	1
26	031358	116-7-131358	9	1
26	033723	116-7-133723	10	1
26	040033	116-7-140033	11	1
26	042404	116-7-142404	12	1
26	044703	116-7-144703	13	1
26	052841	116-7-152841	14	2
26	055156	116-7-155156	15	1
26	064127	116-7-164127	17	1
26	075059	116-7-175059	18	1
26	081421	116-7-181421	19	1
26	085722	116-7-185722	20	1
26	092040	116-7-192040	21	5
26	100358	116-7-200358	22	1
26	102700	116-7-202700	23	1
26	105000	116-7-205000*	24	1
26	111353	116-7-211358	25	1
26	113712	116-7-213712	26	1
26	120029	116-7-220029	27	1
26	122347	116-7-222347	28	1
26	124704	116-7-224704	29	1
26	133340	116-7-233340	30	1
26	135700	116-7-235700	31	1
26	144336	117-7-004336	1	4
26	151408	117-7-011408	3	1
26	153728	117-7-013728	4	1
26	160043	117-7-020043	5	1
26	162403	117-7-022403	6	1
26	164719	117-7-024719	7	1
26	172909	117-7-032909	8	1
26	175226	117-7-035226	9	1
26	183205	117-7-043205	10	1
26	185515	117-7-045515	11	1
27	041227	117-7-141227	12	1
27	043545	117-7-143545	13	1
27	045901	117-7-145901	14	1
27	052218	117-7-152218	15	1
27	054536	117-7-154536	16	1
27	060852	117-7-160852	17	1
27	063212	117-7-163212	18	1

* NASA legend reads 116-7-2625000, an obvious error.

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
27 Apr.	065530	117-7-165530	19	1
27	073611	117-7-173611	20	3
27	075933	117-7-175933	21	3
27	082250	117-7-182250	22	1
27	084607	117-7-184607	23	1
27	090929	117-7-190929	24	1
27	093246	117-7-193246	25	1
27	095605	117-7-195605	26	1
27	101922	117-7-201922	27	1
27	124636	117-7-224636	28	5
27	130848	117-7-230848	29	5
27	134832	117-7-234832	30	3
27	140656	118-7-000656	1	5
27	142608	118-7-002608	2	5
27	144924	118-7-004924	3	4
27	151245	118-7-011245	4	4
27	153606	118-7-013606	5	4
27	155918	118-7-015918	6	4
27	162238	118-7-022238	7	1
27	164558	118-7-024558	8	1
27	170915	118-7-030915	9	1
27	173233	118-7-033233	10	1
27	175550	118-7-035550	11	1
27	181912	118-7-041912	12	1
27	184227	118-7-044227	13	1
28	040522	118-7-140522	14	1
28	042835	118-7-142835	15	1
28	045200	118-7-145200	16	1
28	051515	118-7-151515	17	1
28	053800	118-7-153800	18	1
28	060150	118-7-160150	19	1
28	062508	118-7-162508	20	1
28	071144	118-7-171144	22	1
28	073505	118-7-173505	23	1
28	075825	118-7-175825	24	1
28	082142	118-7-182142	25	1
28	084503	118-7-184503	26	1
28	090825	118-7-190825	27	1
28	093150	118-7-193150	28	3
28	100133	118-7-200133	29	1
28	102452	118-7-202452	30	1
28	104816	118-7-204816	31	1
28	111131	118-7-211131	32	1
28	113451	119-7-213451	33	1
28	115809	118-7-215809	34	1
28	122129	118-7-222129	35	1
28	142414	119-7-002414	1	1
28	144734	119-7-004734	2	1
28	182813	119-7-042813	3	1
28	202726	119-7-062726	4	1
29	025145	119-7-125145	5	1
29	031608	119-7-131608	6	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
29 Apr.	033826	119-7-133826	7	1
29	040142	119-7-140142	8	1
29	055422	119-7-155422	9	1
29	061739	119-7-161739	10	1
29	064159	119-7-164159	11	1
29	070418	119-7-170418	12	1
29	072740	119-7-172740	13	1
29	075105	119-7-175105	14	1
29	081420	119-7-181420	15	1
29	113947	119-7-213947	16	1
29	120307	119-7-220307	17	4 and 5
29	122059	119-7-222059	18	1
29	144645	120-7-004645	1	1
29	151003	120-7-011003	2	1
29	174116	120-7-034116	3	1
29	180435	120-7-040435	4	1
29	203838	120-7-063838	5	1
29	210155	120-7-070155	6	1
30	024115	120-7-124115	7	1
30	030435	120-7-130435	8	1
30	054120	120-7-154120	9	1
30	060722	120-7-160722	10	1
30	063039	120-7-163039	11	1
30	071719	120-7-171719	13	1
30	074039	120-7-174039	14	1
30	080400	120-7-180400	15	1
30	082719	120-7-182719	16	1
30	085046	120-7-185046	17	1
30	091404	120-7-191404	18	1
30	113913	120-7-213913	19	1
30	120232	120-7-220232	20	1
30	122557	120-7-222557	21	1
30	143559	121-7-003559	1	1
30	145916	121-7-005916	2	1
30	173400	121-7-033400	3	1
30	175700	121-7-035712	4	1
30	202503	121-7-062503	5	1
30	204822	121-7-064822	6	1
30	211142	121-7-071142	7	1
1 May	024121	121-7-124121	8	1
1	030444	121-7-130444	9	1
1	052023	121-7-152023	10	1
1	054343	121-7-154343	11	1
1	060703	121-7-160703	12	1
1	070000	121-7-170000	13	1
1	072323	121-7-172323	14	1
1	074643	121-7-174643	15	1
1	081007	121-7-181007	16	1
1	114750	121-7-214750	17	1
1	121108	121-7-221108	18	1
1	123427	121-7-223427	19	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
1 May	150430	122-7-010430	2	1
1	174240	122-7-034240	3	1
1	180651	122-7-040651	4	1
1	203920	122-7-063920	5	1
1	210243	122-7-070243	6	1
2	024856	122-7-124856	7	4
2	031208	122-7-131208	8	1
2	052140	122-7-152140	9	5
2	054637	122-7-154637	10	1
2	093851	122-7-193851	11	1
2	100214	122-7-200214	12	1
2	102534	122-7-202534	13	1
2	124652	122-7-224652	14	1
2	131015	122-7-231015	15	1
2	144707	123-7-004707	1	1
2	151024	123-7-011024	2	1
2	174920	123-7-034920	3	1
2	181238	123-7-041238	4	1
2	203250	123-7-063250	5	1
2	205611	123-7-065611	6	1
3	023520	123-7-123520	7	1
3	025842	123-7-125842	8	1
3	051626	123-7-151626	9	1
3	054420	123-7-154420	10	1
3	080750	123-7-180750	11	1
3	083104	123-7-183104	12	1
3	085440	123-7-185440	13	1
3	113642	123-7-213642	14	1
3	120007	123-7-220007	15	4
3	150702	124-7-010702	1	1
3	173310	124-7-033310	2	1
3	175632	124-7-035632	3	1
4	025405	124-7-125405	4	1
4	031730	124-7-131730	5	1
4	034057	124-7-134057	6	1
4	050105	124-7-150105	7	1
4	054408	124-7-154408	8	1
4	071802	124-7-171802	9	1
4	120117	124-7-220117	11	1
4	122440	124-7-222440	12	1
4	143850	125-7-003850	1	1
4	150216	125-7-010216	2	1
4	182802	125-7-042802	4	1
4	200149	125-7-060149	5	1
4	202512	125-7-062512	6	1
4	204835	125-7-064835	7	1
4	211202	125-7-071202	8	1
4	213524	125-7-073524	9	1
5	051638	125-7-151638	10	1
5	053832	125-7-153832	11	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
5 May	120154	125-7-220154	12	3
5	122504	125-7-222504	13	5
5	123640	125-7-223640	14	5
5	142842	126-7-002842	1	1
5	145207	126-7-005207	2	1
5	151530	126-7-011530	3	1
5	174531	126-7-034531	5	1
5	180957	126-7-040957	6	1
5	204348	126-7-064348	7	1
5	210726	126-7-070726	8	1
6	024111	126-7-124111	9	1
6	030433	126-7-130433	10	1
6	050403	126-7-150403	11	1
6	052726	126-7-152726	12	1
6	073737	126-7-173737	14	1
6	080101	126-7-180101	15	1
6	082425	126-7-182425	16	5
6	090141	126-7-190141	17	-5
6	120248	126-7-220248	19	1
6	122605	126-7-222605	20	1
6	124928	126-7-224928	21	1
6	143957	127-7-003957	1	1
6	150317	127-7-010317	2	1
6	173338	127-7-033338	3	1
6	175703	127-7-035703	4	1
6	203113	127-7-063113	5	1
6	205437	127-7-065437	6	1
7	023716	127-7-123716	7	1
7	030039	127-7-130039	8	1
7	051154	127-7-151154	9	1
7	053518	127-7-153518	10	1
7	055831	127-7-155831	11	1
7	064348	127-7-164348	12	1
7	080655	127-7-180655	13	1
7	083010	127-7-183010	14	1
7	085344	127-7-185344	15	1
7	112811	127-7-212811	16	1
7	115128	127-7-215128	17	1
7	121451	127-7-221451	18	1
7	185347	128-7-045347	1	1
8	115215	128-7-215215	2	1
8	121541	128-7-221541	3	1
8	123908	128-7-223908	4	1
8	144736	129-7-004736	1	1
8	151100	129-7-011100	2	1
8	174027	129-7-034027	3	1
8	181122	129-7-041122	4	1
8	204536	129-7-064536	5	1
9	113524	129-7-213524	7	1

<u>Local Date</u>	<u>Local Time</u>	<u>NASA Identification</u>	<u>Sequence</u>	<u>Quality</u>
9 May	120302	129-7-220302	8	1
9	125806	129-7-225806	9	1
9	132132	129-7-232132	10	1
9	171239	130-7-031239	1	1
9	174105	130-7-034105	2	1
10	111243	130-7-211243	3	1
10	115941	130-7-215941	5	1
10	143755	131-7-003755	1	1
10	150121	131-7-010121	2	1
10	174941	131-7-034941	3	1
10	181307	131-7-041307	4	4
10	210224	131-7-070224	5	1
10	212550	131-7-072550	6	1

Appendix D2

ESSA I PICTURES OF LINE ISLANDS AREA

15 February to 30 April 1967

<u>Orbit No.</u>	<u>Local Date and Time</u>		<u>GMT Date and Time</u>	
5462	18 Feb.	1303	18 Feb.	2303
5505	21	1256	21	2256
5534	23	1326	23	2326
5548	24	1248	24	2248
5563	25	1354	25	2354
5591	27	1245	27	2245
5634	2 Mar.	1241	2 Mar.	2241
5649	3	1206	3	2206
5650	3	1342	3	2342
5662	4	1130	4	2130
5663	4	1210	4	2310
5677	5	1235	5	2235
5678	5	1415	6	0015
5691	6	1200	6	2200
5692	6	1340	6	2340
5706	7	1305	7	2305
5720	8	1230	8	2230
5735	9	1334	9	2334
5749	10	1258	10	2258
5763	11	1223	11	2223
5764	11	1403	12	0003
5778	12	1328	12	2328
5792	13	1253	13	2253
5806	14	1218	14	2218
5807	14	1359	14	2359
5821	15	1323	15	2323
5835	16	1247	16	2247
5836	16	1428	17	0028
5850	17	1353	17	2353
5864	18	1318	18	2318
5878	19	1243	19	2243
5893	20	1348	20	2348
5921	22	1237	22	2237
5936	23	1342	23	2342
5950	24	1307	24	2307
5964	25	1231	25	2231
5978	26	M*		
5979	26	M		
5994	27	M		
6007	28	1225	28	2225
6008	28	1406	29	0006
6021	29	1150	29	2150
6022	29	1331	29	2331
6036	30	1255	30	2255
6048	31	1220	31	2220
6065	1 Apr.	1324	1 Apr.	2324
6079	2	1249	2	2249

*M means exact time of picture not known at this writing.

<u>Orbit No.</u>	<u>Local Date and Time</u>		<u>GMT Date and Time</u>	
6094	3 Apr.	1214	3 Apr.	2214
6108	4	1319	4	2319
6122	5	1243	5	2243
6136	6	1208	6	2208
6137	6	1348	6	2348
6151	7	1313	7	2313
6165	8	1238	8	2238
6179	9	1023	9	2023
6195	10	1309	10	2309
6209	11	1233	11	2233
6222	12	1158	12	2158
6237	13	1303	13	2303
6251	14	1227	14	2227
6265	15	1152	15	2152
6266	15	1332	15	2332
6280	16	1256	16	2256
6294	17	1222	17	2222
6309	18	1327	18	2327
6323	19	1251	19	2251
6337	20	1216	20	2216
6352	21	1321	21	2321
6366	22	1246	22	2246
6380	23	1209	23	2209
6381	23	1350	23	2350
6395	24	1314	24	2314
6409	25	1239	25	2239
6423	26	1203	26	2203
6424	26	1344	26	2344
6452	28	M		
6481	30	1303	30	2303

Appendix D3

ESSA III PICTURES OF LINE ISLANDS AREA

15 February to 30 April 1967

<u>Orbit No.</u>	<u>Local Date and Time</u>		<u>GMT Date and Time</u>	
1714	15 Feb.	M*		
1715	15	M		
1727	16	M		
1728	16	M		
1739	17	1251	17 Feb.	0251
1740	17	1446	18	0046
1751	18	1146	18	2146
1752	18	1341	18	2341
1764	19	1237	19	2237
1765	19	1432	20	0032
1777	20	1328	20	2328
1778	20	1522	21	0122
1790	21	1418	22	0018
1802	22	1314	22	2314
1805	22	1508	23	0108
1815	23	1403	24	0003
1816	23	1558	24	0158
1827	24	1259	24	2259
1853	26	1440	27	0040
1877	28	M		
1878	28	M		
1890	1 Mar.	1324	1 Mar.	2324
1891	1	1519	2	0119
1903	2	1414	3	0014
1916	3	1505	4	0105
1928	4	1400	5	0000
1941	5	M		
1953	6	1347	6	2347
1978	8	M		
1979	8	M		
1991	9	1423	10	0023
2003	10	1319	10	2319
2004	10	1514	11	0114
2016	11	1409	12	0009
2028	12	M		
2029	12	M		
2041	13	M		
2042	13	M		
2053	14	1251	14	2251
2054	14	1446	15	0046
2066	15	1341	15	2341
2067	15	1536	16	0136

* M means exact time of picture not known at this writing.

<u>Orbit No.</u>	<u>Local Date and Time</u>		<u>GMT Date and Time</u>	
2078	16 Mar.	1237	16 Mar.	2237
2079	16	1432	17	0032
2092	17	1523	18	0123
2104	18	1418	19	0018
2117	19	1509	20	0109
2116	19	1314	19	2314
2129	20	M		
2141	21	M		
2142	21	M		
2154	22	M		
2166	23	1247	23	2247
2167	23	1441	24	0041
2179	24	1337	24	2337
2192	25	1427	26	0027
2204	26	1323	26	2323
2217	27	M		
2230	28	M		
2254	30	M		
2255	30	M		
2267	31	M		
2268	31	M		
2281	1 Apr.	M		
2282	1	M		
2292	2	M		
2293	2	M		
2304	3	M		
2305	3	M		
2317	4	1319	4 Apr.	2319
2318	4	1513	5	0113
2329	5	1223	5	2223
2330	5	1409	6	0009
2342	6	1305	6	2305
2343	6	1459	7	0059
2355	7	1355	7	2355
2367	8	1251	8	2251
2368	8	1445	9	0045
2380	9	1341	9	2341
2381	9	1535	10	0135
2393	10	1433	11	0033
2405	11	1328	11	2328
2418	12	1418	13	0018
2430	13	1314	13	2314
2431	13	1509	14	0109
2446	14	1949	15	0549
2456	15	1455	16	0055
2468	16	1351	16	2351
2481	17	1441	18	0041
2493	18	1337	18	2337
2505	19	1233	19	2233
2506	19	1425	20	0025

<u>Orbit No.</u>	<u>Local Date and Time</u>		<u>GMT Date and Time</u>	
2518	20 Apr.	1327	20 Apr.	2327
2519	20	1522	21	0122
2531	21	1418	22	0018
2544	22	1508	23	0108
2556	23	1404	24	0004
2568	24	1300	24	2300
2569	24	1455	25	0055
2581	25	1350	25	2350
2593	26	1246	26	2246
2594	26	1441	27	0041
2606	27	1337	27	2337
2619	28	1427	29	0027
2631	29	1323	29	2323
2644	30	1413	1 May	0013

Appendix D4

APT SATELLITE PICTURES (ESSA IV AND NIMBUS II) RECEIVED ON PALMYRA

Date	Local Time	GMT	Node †	Satellite Orbit No.††	Missing Frames
7 Mar.	1032*	2032	166W	E 509	
8	1107*	2107	175W	E 522	
8	1140*	2140	148W	N 3962	
8	1328*	2328	175W	N 3963	
9	0940*	1949	155W	E 534	
9	1106*	2106	140W	N 3975	
9	1254*	2254	167W	N 3976	
10	1024	2024	164W	E 547	
10	1228	2228	185W	N 3990	
11	0906	1906	145W	E 559	4
11	1059	2059	173W	E 560	
11	1146	2146	150W	N 4002	
11	1334	2334	177W	N 4003	
12	0941*	1941	153W	E 572	
12	1112	2112	141W	N 4015	
12	1300	2300	168W	N 4016	
13	1016*	2016	162W	E 585	
13	1038*	2038	133W	N 4028	
13	1226*	2226	160W	N 4029	
14	0858	1858	142W	E 597	
14	1052	2052	171W	E 598	
14	1152	2152	151W	N 4042	
14	1341*	2341	178W	N 4043	2,3
15	0933*	1933	151W	E 610	
15	1118	2118	143W	N 4055	
15	1307	2307	170W	N 4056	
16	1009*	2009	160W	E 623	
16	1233	2233	161W	N 4069	2,5,6
17	1044	2044	169W	E 636	
17	1159	2159	153W	N 4082	
18	0926	1926	149W	E 648	5
18	1119	2119	177W	E 649	
18	1313	2313	171W	N 4096	4
19	1001	2001	158W	E 661	4
19	1239	2239	163W	N 4109	2,5
20	1036	2036	167W	E 674	1
20	1205	2205	154W	N 4122	5
21	0918	1918	147W	E 686	
21	1111	2111	175W	E 687	
21	1131**	2131	146W	N 4135	

* Missing orbit.

** Markedly sub-standard picture.

† Ascending node (NIMBUS II) and descending node (ESSA IV).

†† E = ESSA IV and N = NIMBUS II.

<u>Date</u>	<u>Local Time</u>	<u>GMT</u>	<u>Node</u>	<u>Satellite Orbit No.</u>	<u>Missing Frames</u>
21 Mar.	1319**	2319	173W	N 4135	
22	0953	1953	156W	E 699	
22	1245	2245	164W	N 4149	6
23	1028	2028	165W	E 712	1,2,4
23	1211	2211	156W	N 4162	
24	0910*	1910	145W	E 724	
24	1104*	2104	173W	E 725	
24	1137	2137	147W	N 4175	
24	1325	2325	174W	N 4176	
25	0946	1946	154W	E 737	
25	1251	2251	166W	N 4189	6
26	1021	2021	162W	E 750	
26	1217	2217	157W	N 4202	
27	1056	2056	171W	E 763	4
27	1132	2332	176W	N 4216	
28	0938	1938	152W	E 775	
28	1131	2131	180W	E 776	
28	1258	2158	167W	N 4229	
29	1013	2013	160W	E 788	
29	1224	2224	159W	N 4242	6
30	1048	2048	169W	E 801	
30	1150	2150	150W	N 4255	6
30	1338	2338	177W	N 4256	
31	0930	1930	149W	E 813	4
31	1124	2124	178W	E 814	
31	1304	2304	169W	N 4269	
1 Apr.	1005	2005	158W	E 826	
1	1230	2230	160W	N 4282	
2	1041	2041	167W	E 829	
2	1156	2156	152W	N 4295	
3	1116*	2116	176W	E 852	
3	1310*	2310	17	N 4309	
4	1236	2236	162W	N 4322	
5	1033	2033	165W	E 877	
5	1202	2202	153W	N 4335	
6	0915	1915	145W	E 889	
6	1108	2108	174W	E 890	
6	1128	2128	145W	N 4348	1
6	1316	2316	172W	N 4349	
7	0950*	1950	154W	E 902	
7	1242	2242	163W	N 4362	
8	1025	2025	163W	E 915	1,3
8	1208	2208	155W	N 4375	
8	1357	2357	178E	N 4376	
9	1101	2101	172W	E 928	
9	1134	2134	146W	N 4388	
9	1324	2324	173W	N 4389	
10	1249	2249	165W	N 4402	
11	1018	2018	161W	E 953	

<u>Date</u>	<u>Local Time</u>	<u>GMT</u>	<u>Node</u>	<u>Satellite Orbit No.</u>	<u>Missing Frames</u>
11 Apr.	1215	2215	156W	N 4415	
12	1053*	2053	170W	E 966	
12	1141	2141	148W	N 4428	
12	1329	2329	175W	N 4429	5
13	0935*	1935	150W	E 978	
13	1255	2255	166W	N 4442	
14	1010	2010	159W	E 991	
14	1221	2221	158W	N 4455	
15	1046	2046	167W	E 1004	
15	1147	2147	149W	N 4468	
15	1355	2355	176W	N 4469	5
16	0927	1927	148W	E 1016	
16	1121*	2121	176W	E 1017	
16	1301	2301	168W	N 4482	
17	1002	2002	157W	E 1029	
17	1227	2227	159W	N 4495	
18	1038	2038	165W	E 1042	
18	1153	2153	151W	N 4508	
18	1341	2341	178W	N 4509	
19	1113	2113	174W	E 1055	
19	1307	2307	169W	N 4522	5
20	0955	1955	154W	E 1067	
20	1233	2233	161W	N 4535	
21	1030	2030	163W	E 1080	
21	1159	2159	152W	N 4548	
21	1347	2347	170W	N 4549	

APPENDIX E

METEOROLOGICAL DATA GUIDE FOR THE LINE ISLANDS

1. A Guide to Published Meteorological Data
for the Line Islands 335
2. A Guide to Unpublished Meteorological
Data for the Line Islands 339

Information for use with Appendix E

The published meteorological data sources are again
cited in the Bibliography, Appendix G.

Appendix E1

A GUIDE TO PUBLISHED METEOROLOGICAL DATA FOR THE LINE ISLANDS

C = Clouds P = Pressure V = Visibility
 H = Humidity R = Rainfall W = Wind
 T = Temperature

CHRISTMAS ISLAND

<u>Data</u>	<u>Period</u>	<u>Reference</u>	<u>Remarks</u>
R	1903-05	(5), p. 256	1905 total doubtful
TR	1916-19	(1), p. 44	--
TRW	1917-19	(9), pp. 4-5	Period means
R	1937-40	(4)	
TRWC	1941-48	(7)	Rainfall frequency only
TRWC	1942-47	(11), p. 3	--
TRWC	1953-58	(11), p. 5	--
R	1956-58	(13), p. 114	Bar graph
TRWC	1953-57	(17), p. 14	Breaks in record
TRHCV	1903-05	(15)	
	1917-19		
	1939-40		
	1951-55		
TR	1951-date	(14)	Monthly values, 24-hr max and rain days
TPHWCV	1962	(10)	1 Apr.-18 Jul.; 8 site observations per day; 2 up rawinsonde, 00 and 12 GMT

FANNING ISLAND

TPR	1904-05	(8)	Cable Station
	1908		
R	1910-11	(5), p. 250	--
R	1903-30	(18), p. 196	Monthly values
W	1903-18	(18), p. 100	Monthly frequencies
TRH	1903-38	(12), p. 39	--
R	1909-38	(6), pp. 36, 55	Monthly values
PR	1931-50	(22), p. 1166	--
TRHCV	1903-42	(15)	Period means only
	1949-55		
TPRWC	1950-55	(14)	--
R	1950-date	(14)	Monthly values, 24-hr max and rain days

FLINT ISLAND

<u>Data</u>	<u>Period</u>	<u>Reference</u>	<u>Remarks</u>
R	1903-05	(5), p. 256	Rough annual totals

KINGMAN REEF

TPHWC	1966	(11)	9-17 Sept.
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MALDEN ISLAND

R	1890-1918	(16), p. 21	Monthly values
TPR	1890-1919	(2), p. 1159	" "
TRHWC	1890-1926	(15)	Period means
TRH	1890-1926	(12), p. 39	" "
TPHWCV	1962	(10)	1 Apr.-11 Jul.; 8 sfc observations per day; 2 rawin- sonde, 00 and 12 GMT

PALMYRA ISLAND

R	1948-49	(20)	Jan.-Oct. 1948-49;
	1955	(19)	daily and monthly values
TR	1956-57	(20)	Jan.-Apr. 1957; daily and monthly values
TRWC	1949		Breaks in record;
	1955-57	(17)	period means only
TPHWCV	1962	(10)	1 Apr.-12 Jul., 25 Sept.-31 Oct.; 8 sfc observations per day; 2 rawin- sonde, 00 and 12 GMT

WASHINGTON ISLAND

R	1910-11	(5), p. 250	
R	1922, 1924	(1), p. 45	Six months data
R	1910-11	(15)	
	1922-29		Breaks in record
	1932-33		
	1939-41		
R	1949, 1954	(14)	Monthly values, 24-hr max and rain days

PUBLISHED DATA SOURCES: LINE ISLANDS

1. Christopherson, Erling, 1927: Vegetation of Pacific equatorial islands, Bernice F. Bishop Museum Bull., 44, 79 pp., Honolulu.
2. Clayton, H. Helm, ed., 1927: World Weather records, Smithsonian Misc. Coll., 79 vi + 1199 pp., Washington.
3. _____, 1934: World Weather Records (1921-1930), Smithsonian Misc. Coll., 90, vi + 616 pp., Washington.
4. Colonial Office (London) 1936-40: Gilbert and Ellice Islands Blue Book (1935-1939), Suva.
5. Commonwealth Bureau of Meteorology, 1914: Results of rainfall observations made in Queensland; including all available annual rainfall totals from 1040 stations for all years of record up to 1913, 285 pp., Commonwealth Bureau of Meteorology, Melbourne.
6. _____, 1940: Results of rainfall observations made in Papua, Mandated Territory of New Guinea, Solomon Islands, New Hebrides, etc., 76 pp., Commonwealth Bureau of Meteorology, Melbourne.
7. Gentzler, Robert F., 1962: Climatological study - Christmas Island (1941-1948), Tech. Mem. No. 260-52 (72), 60 pp., Sandia Corporation, Albuquerque, November.
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10. Joint Task Force Eight, 1964: Meteorological Data Report: 1962 Pacific nuclear tests, 5 volumes, Joint Task Force Eight, Washington, 18 February.
11. _____, 1966: Operation WINDLASS: meteorological data report (September 1966); prepared by J-3 Weather Branch, 90 pp., Sandia Base, New Mexico, 10 November.

12. Meteorological Office, 1920: Meteorological observations at Christmas Island (October 1917 - September 1919), Pacific Ocean, Circular 44, pp. 4-5, Meteorological Office, London, 2 February.
13. _____, 1958: Tables of temperature, relative humidity and precipitation for the world, Part IV: Australasia and the South Pacific Ocean, M. O. 617f, 54 pp., HMSO, London.
14. Meteorological Office Discussion, 1959: Tropical meteorology (with emphasis on the Line Islands, 1956-1958), Met. Mag., 88, 113-119.
15. New Zealand Meteorological Service, 1949-date: Annual meteorological summary: stations in Fiji, Tonga, New Hebrides and Western Pacific High Commission Territories, Suva, Fiji.
16. _____, 1956: Line Islands, Meteor. Notes, 11-B, 10 pp., Wellington, September.
17. Reed, W. W., 1927: Climatological data for the tropical islands of the Pacific Ocean (Oceania), Mon. Wea. Rev. Suppl. No. 28, 22 pp.
18. Sadler, James C., 1959: A study of some recent climatological data of the Line Islands, Proc. Ninth Pac. Sci. Cong. (1957), 13, 12-16.
19. Schott, G., 1938: Klimakunde der Südsee-Insn, 114 pp., in W. Köppen and R. Geiger, Handbuch der Klimatologie, Band IV, Teil T., Berlin.
20. U.S. Weather Bureau, 1948-49: Climatological Data: Hawaii, v. 44-45, Washington.
21. _____, 1956-57: Climatological Data: Pacific, v. 1-2, Washington.
22. _____, 1959: World Weather Records, 1941-1950, ix + 1361, pp., Washington.

Appendix E2

A GUIDE TO UNPUBLISHED METEOROLOGICAL DATA FOR THE LINE ISLANDSCHRISTMAS ISLAND

<u>Data</u>	<u>Period</u>	<u>Reference</u>	<u>Remarks</u>
Surface	Nov. 1941- Oct. 1948	(1)	4 reels microfilm; airfield observations; Mar. 1946 missing.
Surface	18 Mar.- 17 Jul. 1962	(1)	Airfield observations; 1 reel microfilm.
	26 Mar.- 24 Apr. 1962	(1)	" "
Surface	Nov. 1953- Apr. 1954 Jun. 1954- Jan. 1965	(1)	London Village obser- vations; U.S. Weather Bureau Form 610-7; 2 reels microfilm.
Surface	Oct. 1953- Jan. 1965	(1)	Autographic charts (temp, pressure, wind, precip, tides) from London Village; period broken; 3 reels micro- film.
Surface	Oct. 1956- Aug. 1959	(2)	London Village; 8 observations per day.
Upper air	Aug. 1943- Apr. 1944 Jun.-Oct. 1944 Dec. 1944- Oct. 1945	(1)	Airfield observations; data on microfilm, also adiabatic charts and summaries.
Upper air	Mar.-Jul. 1962	(1)	Airfield observations; data on microfilm.
Upper air	Oct. 1956- Dec. 1959	(2)	Airfield observations; winds and radiosondes; 2 observations per day most of period.

FANNING ISLAND

<u>Data</u>	<u>Period</u>	<u>Reference</u>	<u>Remarks</u>
Surface	Apr. 1918- May 1923	(3)	Cable Station, U.S. Weather Bureau Form 1009 observations; breaks in records.
Surface	Apr. 1943- Jun. 1945	(1)	Cable Station; WBAN 10A; 2 reels microfilm.
Surface	Oct. 1957- Sept. 1958	(2)	Cable Station; breaks in record.

MALDEN ISLAND

Surface	Dec. 1956- Sept. 1958	(2)	Breaks in record, 14 complete months; 8 observations per day most of period.
Upper air	Dec. 1956- Jun. 1957 Oct.-Nov. 1957 Mar.-Apr. and Jul.-Sept. 1958	(2)	Radiosonde and winds (more of the latter; some at special hours).

PALMYRA

Surface	Feb. 1942- Nov. 1949	(1)	Observations through 1945, 24 per day; 1946-48, 8 or fewer; 1949, 24 per day. Data taken by Navy, Air Force and CAA. 4 reels microfilm.
Upper air	27 Apr.- 20 Jun. 1957	(1)	Radiosonde and winds, 4 per day; data on microfilm.

WEATHER SHIPS

<u>Data</u>	<u>Period</u>	<u>Reference</u>	<u>Remarks</u>
Surface and upper air	Oct.-Nov. 1957 Apr. 1958	(2)	3 ships taking radiosondes and winds; not all together. Positions between equator and 3N near 154W. Total soundings about 130.

UNPUBLISHED DATA SOURCES: LINE ISLANDS

1. National Weather Records Center, Federal Building, Asheville, North Carolina 28801.
2. Meteorological Office, Eastern Road, Bracknell, Berkshire, England.
3. Department of Geosciences, University of Hawaii, 2525 Correa Road, Honolulu, Hawaii 96822.

APPENDIX F
METEOROLOGICAL PROGRAMS OF THE PACIFIC ATOMIC TEST SERIES

Appendix F

METEOROLOGICAL PROGRAMS OF THE PACIFIC ATOMIC TEST SERIES

Beginning in 1946 with Operation CROSSROADS -- the first full-scale atomic test at Bikini Atoll -- the United States has conducted seven major tests in the Pacific area. Until 1954, when Operation CASTLE was conducted at Eniwetok/Bikini, the meteorological support for these tests consisted primarily of the information needed to support aircraft operations: in other words, conventional airways weather support.

As a result of the increasing size of shot yields and the increasing hazards from radioactive fallout, tests conducted after CASTLE involved more extensive meteorological programs intended to provide detailed information concerning the structure and development of tropospheric and low-stratospheric flow patterns in the atmosphere.

Operation REDWING, conducted at Eniwetok/Bikini during the spring and summer of 1956, involved, from a meteorological point of view, the establishment of special rawinsonde stations at Eniwetok, Tarawa, Kusaie, Kapingamarangi and Rongerik. Special observations were taken by the regular observing stations at Hawaii, Truk, Kwajalein, Ponape, Wake and Majuro. Additionally, extensive aircraft reconnaissance was flown at 850 and 300-mb levels and special ship observations were obtained in the operational area.

A data report for the period 15 April through 31 July 1956 was prepared following the termination of REDWING operations by Joint Task Force Seven. This report consists of twelve volumes -- one for each island station, one containing the aircraft reconnaissance data and one containing the shipboard observations. Copies of these volumes are available through the Department of Geosciences at the University of Hawaii, from NCAR, or from the Department of Defense in Washington, D.C.

The technique of streamline analysis was used by the Task Force Weather Central during REDWING. Analyses at the surface, and at 10,000, 20,000, 40,000, 60,000 and 80,000-ft levels were prepared four times daily for the operational period and are now archived at the University of Hawaii. Also, a large part of the data obtained during this operation has been reduced to punched-card form by the University of Hawaii, from which it is now available.

During the spring and summer of 1958 a series of atomic tests, known as Operation HARTACK, was conducted at the Eniwetok Proving Ground by Joint Task Force Seven. Again, special meteorological operations were conducted: stations were established at Tarawa, Nauru, Kapingamarangi, Kusaie and Utirik, and special observations were obtained from all regular weather stations in the Pacific area. Intensive aircraft reconnaissance and a shipboard observing program were conducted, as well as pilot observations from the nearby atolls of Ujelang, Wotho and Rongelap. Following the termination of operations, a six-volume weather data report for March through July 1958 was prepared in essentially the REDWING format. It is available from the sources cited above.

The last Pacific test series, Operation DOMINIC, was conducted by Joint Task Force Eight in 1962, partly at Christmas Island (April through July) and partly at Johnston Island (October and November). This series differed from earlier operations in that all test shots were either air-dropped or high-altitude missile-launched. As a consequence, fallout hazards were greatly reduced in comparison with the earlier surface shots and the requirement for detailed fallout prediction was lessened. In a sense, this turned the principal meteorological attention from wind structure forecasting to the exotic problems of making detailed cloud forecasts along the "lines of sight" from instrumentation to the fireball and of making low-level wind-shear forecasts over the missile launch area.

In order to provide adequate weather information for these tests, special observations were taken at certain regular weather reporting stations in the tropical Pacific. In addition, special observing stations were established at Palmyra, Malden, Tutuila, Christmas, French

Frigate Shoals and Johnston Islands. Intensive aircraft weather reconnaissance was conducted, and special ship observations were obtained. In this instance, aircraft weather reconnaissance was particularly aimed at obtaining photographic coverage of the cloud patterns in the test area from U-2 and lower altitudes. Augmenting this photography were satellite photographs obtained from the TIROS satellites.

Joint Task Force Eight has prepared a data report which contains the conventional weather data collected; the five-volume report is available from the sources already cited. Unfortunately, the photographic data obtained have, to a large extent, been scattered; some is available through the University of Hawaii and through the Naval Weather Research Facility at Norfolk, Virginia.

Since 1962, periodic operation readiness tests have been conducted by the Joint Task Force in the Johnston Island area, and in each case a weather data report has been published -- for example, Operation WINDLASS in September 1966.

APPENDIX G

BIBLIOGRAPHY

Appendix G

BIBLIOGRAPHY*

The completeness of the following bibliography is largely the result of our having access to a manuscript bibliography (of books, pamphlets, and articles on the Phoenix and Line Islands -- 4 pp., 124 items, 1940) prepared by H. E. Maude of The Australian National University, Canberra. We are particularly indebted to him for many references prior to 1940, and for sending us other manuscript material dealing with Fanning and Palmyra Islands.

We are also indebted to Bryan's excellent book (1942), which, in many ways, has yet to be equalled in scope of personal experiences throughout the Pacific Islands. We have also benefited from Taylor's standard reference (1965), as well as the very useful compilation of Ida Leeson (1954).

No general narrative of the Line Islands has yet been published. However, the best general discussion is that provided by Tudor (1963) and earlier editions published under the same title. Further, Bryan's book (1942) is rich in personal knowledge of many atolls, drawn from his experiences prior to World War II. Although now somewhat out of date, the discussion provided by the British Naval Intelligence Division (1943-45) is useful, including its many maps, charts, and extensive references.

The Line Islands have been objects of scientific scrutiny for nearly a century, with the major emphasis on their natural history. In this regard, the most complete discussion of Palmyra has been provided by Dawson (1959), while Fanning, Christmas, and Washington have been discussed by at least a dozen investigators (Emory, 1934; Gentzler, 1962;

*Includes references in the main text.

Halstead and Schall, 1958; Herms, 1926; Knoch, 1927; Streets, 1877b; Vaughan, 1918; Wentworth, 1931a; Wentworth and Ladd, 1931) although, for the most part, not recently. Geophysical investigations -- largely meteorological -- are provided in a dozen papers (Brooks, 1926; Burns, 1944; Christophersen, 1927; Deberitz, et al., 1967; Freeman, 1957; Hahn, 1913; Joint Task Force Seven, 1959; Meteorological Office, 1920; Meteorological Office Discussion, 1959; New Zealand Meteorological Service, 1956; Sadler, 1959; Seelye, 1950) exclusive of recently published data.

We believe the following bibliography contains all major published scientific results for the Northern Line Islands. In addition, several references include historical descriptions of discovery (Bennett, 1840; Bloxam, 1925; Fanning, 1833; Wilkes, 1845), as well as experiences of those who have lived for extended periods on some of the islands (Benson, 1838; Cooper, 1915; Hague, 1902; Herms, 1926; I. Meng, 1923; Ross, 1948; Rougier, 1914, 1915, 1917, 1925; Tresilian, 1838). With one exception (Steele, 1922), all references were personally examined by one of us at either the Bishop Museum or the Gregg M. Sinclair Library at the University of Hawaii, Honolulu.

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